**Black Gold and Grey Areas:**

**Examining the impacts of regulations on the geopolitical-ecology of caviar trade in the European Union**

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### Abstract

This thesis examines the process of regulating caviar trade in the European Union. EU caviar trade regulations seek to curb overexploitation of critically endangered wild sturgeon and prevent illegal caviar trade. The broad impacts of these regulations are largely overlooked and not understood. This research produces necessary empirical insights by undertaking an in-depth qualitative analysis of the EU caviar trade regulations, and asks: what are the geopolitical-ecological implications of regulating the caviar trade in the European Union?

Geopolitical-ecology refers to how environmental discourses and interventions are mediated through foreign policy agendas, and subsequently shape ecologies with multi-scalar geopolitical effects.

This study draws upon environmental geopolitics, geopolitical ecology, and more-than-human scholarship to develop a framework for more-than-human geopolitical ecology. I deploy this theoretical framework alongside a follow-the-policy methodology, which traces: how caviar trade policies variably materialise in the EU; with what effects; and how these effects are unequally distributed amongst human and nonhuman actors.

In analysing the implications of the EU caviar trade policies, I develop a twofold argument. First, I argue that the regulatory frameworks exhibit a number of gaps and grey areas. These include gaps in content; gaps in enforcement; and gaps in the policy narratives that sustain the regulatory frameworks. Such legislative omissions and ambiguities produce unintended geopolitical-ecological consequences that extend beyond the illegal caviar trade. Indeed, there are broader implications for EU security, geopolitics, and political ecologies.

Second, I argue that caviar and sturgeon are unlikely geopolitical actors. The geopolitical nature of these nonhuman actors is brought to light through the ways in which they reveal inconsistencies in the regulatory frameworks, and thereby co-produce resulting EU geopolitical-ecological configurations.

While developing burgeoning conversations about illegal wildlife trade and the EU, these insights also demonstrate the important role of nonhumans in co-producing geopolitical-ecologies within the region and more broadly.

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### List of Acronyms

ANPA Agenţia Naţională pentru Pescuit şi Acvacultură

(Romanian National Agency for Fisheries and Aquaculture – also see NAFA)

APHA Animal Plant Health Agency, UK Government executive agency

BFN German Federal Agency for Nature Conservation

CDA Critical Discourse Analysis

CITES Convention on International Trade in Endangered Species of Wild Fauna and Flora

CITES CoP CITES Conference of the Parties

DDBRA Danube Delta Biosphere Reserve Authority

DG DEVCO Directorate General for International Cooperation and Development, Eur. Comm.

DG ENV Directorate General for the Environment, European Commission

DG MARE Directorate General for Maritime Affairs and Fisheries, European Commission

DG MOVE Directorate General for Mobility and Transport, European Commission

DG REGIO Directorate General for Regional and Urban Policy, European Commission

DG TRADE Directorate General for Trade, European Commission

DSTF Danube Sturgeon Task Force

EEAS European External Action Service

EU European Union

EUSDR EU Strategy for the Danube Region

EU WTR EU Wildlife Trade Regulations

HEP Hydro-electric power

ICIA International Caviar Importers Association

ICPDR International Commission for the Protection of the Danube River

ISS8 8th International Sturgeon Symposium

IUCN International Union for Conservation of Nature

IWT Illegal Wildlife Trade

JASPERS Joint Assistance to Support Projects in European Regions, European Investment Bank

NAFA National Agency for Fisheries and Aquaculture, Romania (also see ANPA)

NATO North Atlantic Treaty Organisation

NGO Non-Governmental Organisation

NWCU National Wildlife Crime Unit (UK)

SIRA Stable Isotope Ratio Analysis

TRAFFIC The Wildlife Trade Monitoring Network

UN United Nations

UNCAC United Nations Convention Against Corruption

UNEP-WCMC United Nations Environment Programme World Conservation Monitoring Centre

UNECE United Nations Economic Commission for Europe

UNODC United Nations Office on Drugs and Crime

UNTOC United Nations Convention on Transnational Organized Crime

USFWS United States Fish and Wildlife Service

WSCS World Sturgeon Conservation Society

WWF World Wide Fund for Nature

# IMG_20180425_121643.jpg

##### Image 01: Tins of caviar on display at the Seafood Expo Global, Brussels, 2018

(Source: Author’s photograph)

# Chapter 1: Introduction

## 1.0 Introduction

This thesis is about caviar. More specifically the thesis examines the geopolitical-ecological impacts resulting from the regulation of the caviar trade in the European Union over the last quarter of a century[[1]](#footnote-1). Geopolitical ecology refers to how environmental discourses and interventions are mediated through foreign policy agendas, and subsequently shape ecologies with multi-scalar geopolitical effects.

The main argument I develop is twofold. First, I argue that the EU caviar trade regulations have legislative gaps and grey areas that produce unintended geopolitical-ecological consequences, which impact upon: dynamics of illegal caviar trade; the operations of the legal caviar industry; and the broader geopolitics of the EU. The second aspect of my argument is that caviar and sturgeon (the fish from which caviar is rendered) are geopolitical subjects and actors.

To strengthen this argument, I develop *‘more-than-human geopolitical ecology’* as a theoretical framework. This approach theorises the constitutive role of nonhuman actors in co-producing matters of environmental and ecological geopolitics alongside human actors. When I refer to geopolitics throughout this thesis, I am making reference to the manner in which both physical and human geographical phenomena shape the processes of international relations. Building upon this, I emphasise the importance of conceptualising nonhumans as geopolitical actors, and by extension the realm of geopolitics as inherently more-than-human. By deploying this theoretical framework I give nuanced explanations for how gaps and grey areas in caviar trade regulations variably result in the entanglement of caviar and sturgeon with EU geopolitics.

This thesis adds a novel perspective to social science research on illegal caviar trade. Existing studies have examined the links between illegal caviar trade and organised crime (Zabyelina, 2014; van Uhm and Siegel, 2016) and corruption (Musing *et al* 2019); yet limited attention has been paid to the actors and processes driving the criminalization of caviar trafficking and sturgeon poaching globally. My research therefore responds to the distinct need for detailed examination of the caviar trade regulations and their structural impacts, with a particular focus on the European Union.

The remainder of this introduction provides greater context to the arguments that I have outlined above. In section 1.1 I outline the research questions underpinning this thesis. In section 1.2 I situate these research questions by contextualizing the caviar trade in the EU; and identifying some of the gaps in existing research on illegal caviar trade generally, and more specifically on illegal caviar trade in the European Union. In section 1.3 I describe the original contribution to knowledge that my thesis makes. Finally section 1.4 provides a summary of the content and main argument of each thesis chapter in turn.

## 1.1 Research Questions

An overarching research question and a series of complementary sub-questions guide this PhD thesis. These research questions are theoretically informed, and acted as the foundation for my data collection and analysis. The questions are as follows:

**What are the geopolitical-ecological implications of regulating the caviar trade in the European Union?**

* How has the caviar industry in the EU changed as a result of regulating sturgeon crimes and caviar trade?
  + How do key actors who are affected by caviar trade policy discursively frame these changes?
* What are the legislative gaps, grey areas, absences or weaknesses in caviar trade policies?
  + How do gaps and grey areas in policy enable sturgeon crimes and illegal caviar trade to continue?
  + What other dynamics have these regulatory ambiguities created or contributed to?
* How and why are the impacts of the regulatory changes geopolitical?
  + How are sturgeon and caviar constituted as geopolitical subjects and actors?

## 1.2 Background and rationale of the research

I started my PhD journey in Autumn 2016 with a broad aim to study the European Union’s approach to tackling wildlife trafficking. The EU Action Plan against Wildlife trafficking[[2]](#footnote-2), which was launched earlier in the same year, was influential in inspiring my research trajectory. The Action Plan against Wildlife trafficking is not a legally binding instrument, but outlines a series of suggested measures to be taken by EU Member States and EU institutions in order to achieve the following three priorities:

1. Preventing wildlife trafficking and addressing its root causes
2. Implementing and enforcing existing rules and combating organised crime more effectively
3. Strengthening the global partnership of source, consumer and transit countries against wildlife trafficking

(European Commission, 2016:10)

The Action Plan recognises that “Europe is currently a destination market and a hub for trafficking in transit to other regions” (European Commission, 2016: 7); citing trade in ivory, rhino horn, and imports of reptiles and exotic birds as wildlife trafficking issues that implicate the EU. The EU is also noted as “a region from which certain species are sourced for illegal trade” (ibid); and the trade in European eels to Asia is given as an example. However, notable by its absence in the EU Action Plan against Wildlife trafficking, are references to trafficking in European species for consumption *within* the EU. This is a glaring omission. Intra-European wildlife trade is a largely overlooked issue and I wanted to draw attention to Europe’s role as a ‘silent hub’ for illegal wildlife trade (Banos-Ruiz, 2017). As such, I decided to ground my analysis of the EU’s approach to combatting wildlife trafficking by researching a wildlife trade that was particularly ‘European’ in its dimensions. To this extent, I decided to study the EU’s approach to tackling illegal caviar trade, given that the EU is a source, transit, and market for trafficked caviar. Moreover, the international trade in caviar has undergone significant regulation since 1998 in order to tackle caviar trafficking and sturgeon poaching. I was interested in assessing how the caviar trade regulations manifest in the EU, and with what impacts.

### 1.2.1 Caviar trade in the EU

There is limited critical social science research engaging with issues of caviar trade – legal or illegal – in the European Union. In particular, to my knowledge there exist no studies that examine EU caviar trade in a holistic manner, which theorises and links (illegal) caviar trade in Western Europe with (illegal) caviar trade dynamics in Eastern European states. This thesis seeks to address this gap. I suggest that a way to holistically study caviar trade in the EU, is to examine the EU caviar trade regulations and their broader geopolitical-ecological implications across the EU. Examining the impacts of the caviar trade regulations opens up opportunities for explaining how the adoption of particular aspects of the regulations – such as the criminalization of sturgeon fishing - in certain EU Member States, has unexpected knock-on effects in other EU Member States.

Caviar is widely consumed in the European Union. Indeed, the EU is the world’s largest legal caviar importer (Harris and Shiraishi, 2018). The EU is also recognised as the main global market for illegally traded caviar (Knapp *et al.*, 2006); with 10t of illegally traded caviar confiscated by authorities in EU Member States between 2001-2010 (Van Uhm & Siegel, 2016:77). Between 2010-2016 confiscations of illegal caviar declined to 787kg in the EU (Harris and Shiraishi, 2018). This decline coincided with the expansion of regulatory mechanisms, which prompted the wholesale transformation of the caviar industry in the EU and globally: moving from one that was almost wholly supplied by wild caviar until 2006, to one that is now built on aquaculture and farmed production of caviar.

Despite the criminalization of wild caviar consumption and sturgeon fishing in the EU, poaching of sturgeon for caviar continues (Jahrl, 2013; Harris and Shiraishi, 2018; Musing *et al.*, 2019). Indeed, some NGO reports argue that “illegal fishing and trade has reached alarming proportions and have become the main direct threat to the survival of the Danube sturgeons” (Schlingeman *et al.*, 2017:10). Out of the 6 species of sturgeon native to the Danube River Basin, the European Sturgeon (*A. Sturio*) is now extinct, and the other 5 species[[3]](#footnote-3) are listed as ‘critically endangered’ on the IUCN Red List[[4]](#footnote-4). The Danube River Basin is the focus of these studies, as it is the only habitat in Europe with remaining viable wild sturgeon populations. Specifically, Romania and Bulgaria are the only EU Member States with naturally reproducing sturgeon populations. However, NGO-led studies (Kecse-Nagy, 2011; Jahrl, 2013) suggest that demand for caviar on EU markets is fuelling sturgeon crimes in these EU Member States, and these dynamics have a significant role to play in pushing sturgeon closer to extinction.

Moreover, the illegal trade in caviar within the EU is said to be “well-organized”, use “sophisticated methods” and “is considered to have strong links with organized crime groups” (Kecse-Nagy, 2011:1) both internal and external to the EU. In particular, references are made to the transnational reach of a purported ‘caviar mafia’, that is active in smuggling operations in EU member states (Ratchford, Allgood and Todd, 2013; Wyatt, 2013; van Uhm and Siegel, 2016). The criminal networks are reported to “manifest themselves at all levels of the trade” (Van Uhm & Siegel, 2016:67) driven by the high economic value[[5]](#footnote-5) and scarcity of sturgeon caviar. Indeed, caviar has such high value and rarity, that it has been dubbed ‘black gold’ (TRAFFIC, 2009) and ‘Caspian Diamonds’ (Zabyelina, 2014:186).

Despite reports linking illegal caviar trade in Europe to organised crime, “specific accounts of illegal fishing and the illicit caviar trade are few” (Zabyelina, 2014:182). An exception is Van Uhm and Siegel’s (2016) important article on the illegal trade in black caviar. The authors describe how Western Europe is a major outlet for illegal caviar originating from the Caspian Sea range states, purportedly entering the EU via Turkey and Poland (ibid: 79). There is however, a dearth of academic research that describes dynamics of illegal caviar trade originating from within the European Union. Existing accounts of illegal caviar trade with origins in the EU, are limited to studies produced from NGO-led research and are mainly descriptive, policy oriented, and focused on Eastern Europe (Kecse-Nagy, 2011; Jahrl, 2013; Schlingeman *et al.*, 2017). These studies focus primarily on illegal caviar trade in Romania and Bulgaria, examining the trade dynamics between 1998 and 2008 (Kecse-Nagy, 2011) and explaining the results from market surveys conducted in the two EU Member States (Jahrl, 2013). These studies provide localized accounts of illicit caviar trade, giving anecdotal descriptions of illicit caviar offered for sale in Bulgaria and Romania. The report by Schlingeman *et al.* (2017) situates ‘sturgeon crimes’ alongside other wildlife and forest crimes happening in the Danube-Carpathian region of Europe. However these studies do not explain or link the sturgeon crime dynamics in Eastern European Member States with the wider political economy, geopolitics, and ecologies of the caviar trade in the EU.

Thus, although there is recognition that EU Member States have multifaceted links to illegal caviar trade across the European caviar supply chain, this has not been examined in a synthesised manner in academic work to date. This thesis draws links between regulatory dynamics in Western Europe and Eastern Europe, and in doing so builds a more holistic empirical understanding of contemporary illegal caviar trade in the European Union, from source to end-user market.

To do this, I take inspiration from Zabyelina’s (2014) account of the dynamics of the global illicit market in black caviar. In this article, Zabyelina emphasises the need to pay attention to the “economic and legal triggers” that lead to the “prosperity and continuity” of caviar trafficking (2014: 183). The EU caviar trade regulations have been subject to limited academic attention, but I demonstrate how the gaps and grey areas in these regulations act as ‘legal triggers’ for the continuity of caviar trafficking in the EU. I also investigate the structural impacts and broader geopolitical-ecological implications arising from the inconsistencies in the regulatory frameworks. To my knowledge, this represents the first academic study examining caviar trade regulations in the EU, and their impacts on the broader geopolitical-ecologies of European caviar trade.

## 1.3 Empirical, theoretical and methodological contributions

This thesis makes a number of contributions to knowledge that are empirical, theoretical, and methodological in scope. First, the thesis outlines novel empirical material on illegal caviar trade in the EU. Existing studies of illegal caviar trade have not examined caviar trade regulations – in terms of their impacts or flaws – in great qualitative depth. An exception is Doukakis *et al.*'s (2012) research on the ‘effectiveness’ of the CITES Resolution on trade in sturgeon and their derivatives. Based on DNA testing of samples of caviar purchased in New York, Doukakis *et al.* (2012)conclude that regulations may be having a positive conservation effect. This thesis pushes a novel empirical focus by critically engaging with the impact of regulatory frameworks in the EU. Rather than seeking to measure the ‘effectiveness’ of caviar trade regulations in the EU, I examine the impacts of the caviar trade policies in a broad sense. My findings add fresh empirical insights by showing how the caviar trade regulations impact upon dynamics and mechanisms of illegal caviar trade, organised crime, and corruption, with geopolitical-ecological consequences. I also illustrate how overlooked gaps and grey areas in caviar trade regulations, produce unintended geopolitical-ecological impacts that extend beyond the remit of regulating illegal caviar trade.

In this thesis I develop arguments that introduce ‘*more-than-human geopolitical ecology’* as a theoretical framework. My approach enlivens and expands the parameters of the sub-fields of geopolitical ecology and environmental geopolitics. My original contribution is to point to the importance of theorising the role of nonhuman nature in co-producing geopolitical-ecologies. In chapter two, I describe in detail environmental geopolitics and geopolitical ecology as important theoretical approaches for understanding the geopolitics of environmental change. I apply aspects from these two approaches in order to theorise how EU geopolitical actors define, control, and manage sturgeon and caviar through regulations, and as a way of intervening into wider processes of environmental and ecological change. But I make the argument that neither geopolitical ecology nor environmental geopolitics can capture the entire complexities of my empirical case, and subsequently develop my vision for *‘more-than-human geopolitical ecology’*. This theoretical framework integrates the active role of sturgeon and caviar in shaping the intersections of geopolitics, political economy and environmental change that are inherent to efforts to regulate the caviar trade in the EU. In this thesis, I produce a more expansive version of geopolitical ecology, which rethinks who or what can act in geopolitical ways and shape issues of environmental change.

Finally, the thesis makes an original methodological contribution. In order to study the impacts of caviar trade regulations in the EU I employ a follow-the-policy methodology inspired by Peck and Theodore (2012, 2015).This methodology is typically applied to economic policies, and so the adoption of this method in the area of environmental policy is novel. In particular, my focus on following gaps and grey areas in policy adds a new dimension to follow-the-policy methods. I describe the specificities of my methodological approach in chapter three.

## 1.4 Structure of the thesis

The thesis is structured as follows. Chapter two elaborates the theoretical framework of the thesis. My theoretical framework borrows and combines aspects from three complementary fields: geopolitical ecology, environmental geopolitics and more-than-human social science. By combining theoretical approaches from these fields, I develop a framework that I call ‘*more-than-human geopolitical ecology’*. This framework makes space for theorising and explaining the role of nonhuman actors in shaping the ways in which the geopolitics of policymaking and processes of environmental change intersect.

In chapter three I outline my methodological approach for doing research that espouses a ‘*more-than-human geopolitical ecology*’ theoretical framework. The chapter demonstrates how I put theory into practice, and explicates the conceptual, practical, political, and ethical challenges that I grappled with during the research and writing process. In this chapter I introduce follow-the-policy as the methodology that I adapted to the specificities of my case. I explain how I followed people, sturgeon, materials, and meetings in order to trace the geopolitical-ecological implications of EU caviar trade regulations from a more-than-human perspective. I also outline how I utilised critical discourse analysis to analyse the data I collected.

The following five chapters are the empirical chapters of the thesis. In these chapters I describe my research findings and demonstrate how my data answers the main research questions of the thesis. Chapter four introduces the argument that the regulations designed to prevent illegal caviar trade in the EU have not completely prevented illegal caviar trade due to a number of gaps and grey areas in the regulatory frameworks. Rather, I argue that the regulations have produced unintended geopolitical-ecological consequences. The chapter is split into two parts. The first section takes the regulations as the starting point, providing context for their creation, explaining what the regulations are and how they are applied in the EU, and explaining some of the identified inconsistencies in the regulations. In the discussion section of the chapter, I analyse how hegemonic policy narratives frame the impact of regulations in terms of declining seizures of illegal caviar. I argue that this ‘success’ narrative must be unpacked and recontextualised. I do so by examining the hidden political-ecological implications of the regulations for sturgeon fishing communities and wild sturgeon.

Chapter five directly follows the line of argument in chapter four, as it continues to develop empirical evidence that shows the EU caviar trade regulations have not prevented illegal caviar trade. In this chapter I argue that the regulations have enabled illegal caviar trade to continue under new guises that take advantage of the complex material properties of caviar. This chapter engages deeply with the materiality of caviar. I argue that the micropolitical properties of caviar have macropolitical impacts. I illustrate that the material attributes of caviar are fundamental to the co-production of the caviar ‘grey market’, which has burgeoned in the EU since the implementation of the caviar trade regulations. Thus, I illustrate how the regulatory frameworks have inadvertently created a closer intertwining of the legal and illegal caviar trade, and I theorise the role of caviar in co-producing the caviar grey market.

In chapter six I shift attention away from the impacts of the regulations on dynamics of illegal caviar trade, towards the broader implications of the regulatory frameworks in the EU. Taking the policy shift towards farmed caviar production as my empirical focus, I examine how gaps and grey areas in the regulations have enabled the securitization of the physical infrastructures and practices of farmed caviar production in the EU. I argue that this process of securitization is justified by a narrative that positions farmed caviar production as the conservation panacea for wild sturgeon. However, this chapter demonstrates that the securitization process has created more tangible opportunities for capital accumulation in the caviar industry, rather than demonstrable sturgeon conservation benefit. I analyse the more-than-human political implications of the security-conservation-accumulation nexus that is at work in farmed caviar production; and show how this nexus has been brought into being and sustained by policy narratives with distinct grey areas.

Chapter seven continues to focus on the security implications of the caviar trade regulations in the European Union. The chapter uses a framework from securitization studies to examine how the caviar trade regulations have caused security narratives associated with the caviar trade to emerge, evolve, and dissolve. I argue that power geometries in the EU mean that some of these security narratives gain traction over others, and that this has material consequences for European policy and enforcement strategies. I challenge the discursive desecuritization of sturgeon crimes at the highest EU policy level, by pointing to gaps in the regulatory frameworks to show how these omissions have caused security issues to emerge and evolve in downstream sites of policy implementation.

Chapter eight is the final empirical chapter, and consolidates my arguments about the geopolitical-ecological impacts caused by ambiguities in the caviar trade regulations. Importantly, I demonstrate how sturgeon are both geopolitically important to EU Member States, and geopolitical actors themselves. I focus on the geopolitical-ecological implications of the caviar trade regulations and analyse how geopolitical actors have exploited the grey areas in these regulations as a way of gaining control over and access to sturgeon. However, I illustrate how sturgeon can disrupt efforts to be controlled by geopolitical actors. Instead, I show how the mobility, materiality, and ecology of sturgeon actually play a fundamental role in shaping geopolitical situations in the EU. Thus, I finish by explicating my key original contribution to knowledge: illustrating that sturgeon are geopolitical actors that have a significant role in determining the geopolitical realities arising from the efforts to regulate the caviar trade in the European Union.

Finally, in chapter nine I summarise the main empirical findings and key conclusions of the research. Reflecting on the preceding empirical chapters and research questions, I explain how the irregularities in policy identified in this research, fall under three main categories: absences and inconsistencies in the content of regulations; gaps in implementation and enforcement of the regulations; and oversights and grey areas in the related policy narratives. I then draw out conclusions about the implications of these gaps and grey areas in policy, for four broad themes that emerged from my analysis: illegal caviar trade and the caviar industry; hidden political ecologies; security and power; sturgeon geopolitics and caviar diplomacy. Finally, I reflect on the practical policy implications of my research, and then consider the potential opportunities for future research that have been borne out of this project.

# Chapter 2: A theoretical approach for more-than-human geopolitical ecology

## 2.0 Introduction

This chapter outlines a theoretical approach for more-than-human geopolitical ecology. As a theoretical approach, more-than-human geopolitical ecology builds upon a growing body of work in critical social science. This body of work develops frameworks for analysing the geopolitics of environmental change. These include but are not limited to: geopolitical ecology (Bigger and Neimark, 2017; Mostafanezhad and Evrard, 2018; Massé and Margulies, 2020); environmental geopolitics (O’Lear, 2018, 2020); conservation geopolitics (Hodgetts *et al.*, 2018; Ramutsindela *et al*., 2020); and Anthropocene geopolitics (Dalby, 2020). These sub-fields have a collective concern with examining how interventions into changing environments, are increasingly geopolitical in both motivation and outcome.

My approach to more-than-human geopolitical ecology is directly informed by scholarship in environmental geopolitics and geopolitical ecology. I apply elements from each of these theoretical approaches, in order to conceptualise the far-reaching geopolitical-ecological implications of caviar trade regulations in the European Union. Neither of these approaches in isolation can adequately theorise the nuances of my empirical case; and although these theoretical approaches share some obvious commonalities and intersections, to-date there has been little exchange between the two. As such, my theoretical approach represents an attempt to explicitly bring these sub-disciplines into dialogue with each other in productive ways.

Despite the productive possibilities that emerge from a dialogue between environmental geopolitics and geopolitical ecology, I argue that the two approaches under-theorise the role of nonhumans in co-producing the geopolitics of environmental change. In this regard, a straightforward combination of the two approaches cannot capture the complexities of the arguments I develop in this thesis. The approach I develop for more-than-human geopolitical ecology achieves something substantively different to either environmental geopolitics or geopolitical ecology. I ask largely overlooked questions about how nonhuman actors figure alongside geopolitical institutions in the making of geopolitical natures and environments. More-than-human geopolitical ecology therefore theoretically expands the remit of who or what constitutes the ‘political’ in discussions of geopolitics and the environment, by pointing to the geopolitical potentials of nonhuman animals including sturgeon; and material-things including caviar. In recognition that the regulation of trade in caviar and sturgeon in the EU is an intrinsically more-than-human endeavour, I argue that the theoretical frameworks to make sense of the impacts of these regulatory processes should likewise be more-than-human.

The chapter is structured as follows. In section 2.1 I introduce environmental geopolitics and geopolitical ecology as the theoretical foundations of my approach. I critically review the literature in the two fields, highlighting the analytical strengths of these approaches; as well as identifying gaps or limitations in the literature. I discuss how these approaches can work in dialogue with each other, whilst also reflecting upon the combined human-centrism of environmental geopolitics and geopolitical ecology. In section 2.2 I indicate ways of incorporating nonhumans into theoretical analyses of the geopolitics of environmental change. I highlight how literatures in both political ecology and critical geopolitics have already engaged with the political potentials of material-things, and animals. These more-than-human analyses highlight the (geo)political significance of nonhumans, and being attuned to these theories paves the way for more-than-human geopolitical ecology. In section 2.3 I outline my theoretical contribution and reiterate my approach for more-than-human geopolitical ecology.

## 2.1 Theoretical foundations: Environmental Geopolitics and Geopolitical Ecology

Recently, there have been calls for renewed scholarly attention directed to the “interface between political geography and political ecology” (Benjaminsen *et al.*, 2017: A1-A2); with encouragement for academics to empirically and theoretically explore the points of convergence and divergence between these sub-fields. In truth, scholarship from within the critical social sciences has long been exploring these intersections. Over a decade ago, Paul Robbins called for direct engagement between theories in political geography and the burgeoning field of political ecology, stating that “the serious engagement of each field with the other is a prerequisite to future progress in understanding socio-environmental change” (Robbins, 2008: 206). Indeed even prior to Robbins’ call, pre-eminent scholars were already examining the ‘political ecology of war’ (Le Billon, 2001), ‘geopolitics of nature’ (Castree, 2003), ‘geopolitics and ecology’ (Dalby, 2000) and the ‘geopolitical economy of resource wars’ (Le Billon, 2004). As such, it is important to acknowledge that the burgeoning enquiries into the intersections between political ecology and political geography, are built upon extensive theoretical foundations.

Both environmental geopolitics and geopolitical ecology are developing as theoretical approaches that sit in the disciplinary hinterlands between political ecology and political geography – in particular the sub-field of critical geopolitics. Geopolitical ecology is positioned as an “explicit encounter between critical geopolitics and political ecology” (Bigger & Neimark, 2017: 14). On the other hand, environmental geopolitics is framed first and foremost as a form of critical geopolitics that “questions arguments about how environmental features are tied either to risk or to security” (O’Lear, 2020: 194). The attention that environmental geopolitics pays to analysing who benefits from these arguments, echoes political ecology’s concern with how power is unequally exercised and distributed in “struggles over material resources as well as over meaning” (Benjaminsen *et al.*, 2017: A1). As such, there are obvious overlaps between the two sub-disciplines and the frameworks they outline for understanding the geopolitics of environmental change. Indeed, some scholars have mobilised geopolitical ecology in one instance (Mostafanezhad & Evrard, 2018) and environmental geopolitics in another (Mostafanezhad and Evrard, 2020) to speak to the nuances of their research contexts. However due to the slightly different emphasis in disciplinary orientation, proponents of the two theoretical frameworks deploy and develop the parameters of the sub-disciplines in varying ways. This presents an opportunity to bring the complementary sub-disciplines into dialogue with each other. Indeed, Mostafanezhad & Evrard suggest that “integrating geopolitical ecologies with environmental geopolitics is a useful theoretical context from which to examine the discursive and material framing of socio-environmental change” (Mostafanezhad and Evrard, 2020:123). To this extent, I incorporate aspects of each sub-discipline into my approach for more-than-human geopolitical ecology. I first examine the literature in environmental geopolitics and then geopolitical ecology. I then explain what elements I apply from each approach, before acknowledging that a combination of these theoretical foundations can only take me so far in theorising the more-than-human dimensions of the geopolitics of environmental change and environmental policymaking.

### 2.1.1 Environmental geopolitics

Environmental geopolitics is an emerging field of inquiry that is avowedly rooted in political geography and critical geopolitics in particular (O’Lear, 2020). Building upon Castree’s assertion that “there is geopolitics to how environmental problems are represented” (2003: 427), environmental geopolitics applies the deconstructive logics of critical geopolitics to: examine “how environmental themes are used to support geopolitical arguments and realities”, and “ask how *the environment* is brought into narratives, practices and physical realities of power and place” (O’Lear, 2018: 2). The key questions of environmental geopolitics focus on the geographies of human-environment relations. They ask: how are ‘the environment’ and environmental features being defined or portrayed in a given argument? How is the environmental feature in question shaped by human interactions, systems, and dynamics of power? How is the environmental argument linked to risk or security and how is this spatially focused? (O’Lear 2020). In other words, environmental geopolitics is a theoretical approach that seeks to discursively disentangle how geo-power is exercised spatially through environmental means, and with what material impacts.

Environmental geopolitics has many antecedents in terms of critical geopolitical engagements with the environment, and in particular examinations of the climate-change and conflict nexus (Le Billon, 2008; Dalby, 2010, 2013, 2014; Grove, 2010; Powell and Dodds, 2014; Chaturvedi and Doyle, 2015; Selby *et al.*, 2017; Selby, 2019). The emerging scholarship on environmental geopolitics represents an increasingly well-defined intellectual project spearheaded by Shannon O’Lear (2018, 2020), which provides a coherent framework for critical engagements with the geopolitics of human-environment relations. These developing engagements move beyond conceptualising the geopolitics of the environment in terms of the traditional war-environment-security nexus (Moisio, 2015); although the geopolitics of environmental conflict remains analytically significant. Instead, environmental geopolitics broadens the intellectual purview by engaging with a range of geopolitical-environmental issues including: the geopolitics of territorialisation and conservation in the high-seas (Gray, Acton and Campbell, 2020); the geopolitical power of rumours in shaping environmental narratives (Mostafanezhad and Evrard, 2020); and the geopolitical representations of conflict-commodities and their supply chains (Le Billon and Shykora, 2020). In this regard, environmental geopolitics is pushing boundaries. The sub-discipline is increasingly producing a synthesised theoretical approach to research on the ever-expanding geopolitics and discourses of environmental change.

Environmental geopolitics does useful work in deconstructing the discourses that underpin how the environment is made and re-made as geopolitical; and theorising how such discourses are stabilised through reference to scientific evidence and/or the notions of risk and security. O’Lear develops the argument that “we can study discourse by examining how it *speaks* through materiality, embodiment, and practices as well as through textual or visual narratives” (2018: 15-16). Historically, scholarship from critical geopolitics centred verbal narratives and texts as the primary medium through which to deconstruct geopolitical discourses (Toal, 1996); but it is increasingly recognised that discourses are evident in tangible ways in physical places. As such, a broader appreciation of how discourse works ‘off-the-page’ (O’Lear, 2018) is important for understanding how geopolitical claims materialise – and are contested – in forms that physically shape human-environment relations.

The materiality of geopolitical discourses is realised through the tangible things we create and build. In particular, the materialities of geopolitical discourses are evident in “how societies draw from environmental resources in particular ways, and they are evident in altered landscapes resulting from the extraction, construction, and movement of things, and patterns of consumption and waste” (O’Lear, 2018: 168). For example, Le Billon and Shykora (2020) examine the environmental geopolitics of commodities, and acknowledge that supply chains are material manifestations of geopolitical discourses. Geopolitical interests and representations of commodities fuelled the expansion of colonialism, and have created political entities and imaginaries such as West Africa’s ‘Ivory Coast’ (Agnew, 2003) and the Middle East’s ‘oil curse’ (Le Billon, 2014). Le Billon and Shykora suggest the power implications of these material commodity discourses result in “selective geographies of environmental degradation and resource (in)securities” (2020: 59), which serve to distort global supply chain governance and obfuscate the environmental impacts of resource extraction. They argue that ‘Othered’ spaces are represented in ways that intrinsically associate them with particular commodities that result from their geographies – ‘mineral deposits’ or ‘climate’ – “rather than as the product of exploitative and racialized commodity production networks” (Le Billon and Shykora, 2020: 60). Thus supply chains of commodities such as oil, diamonds, palm oil, and quinoa are material manifestations of particular environmental-geopolitical discourses, and show how “things, artefacts, and physical systems interact with and shape decisions about how physical space will be used, valued and devalued” (O’Lear, 2018: 16).

Environmental geopolitical discourse is also witnessed via embodied identities. Lived experiences of space and power are expressed through how bodies are grouped in relation to the environment. Identity discourses “intertwine with how we interpret security and risk” (O’Lear 2018: 168). This effectively refers to how power is exercised discursively to designate distinct groups as either at risk, or part of the environmental threat. For example, Mostafanezhad and Evrard (2020) show how geopolitical discourses are embodied in the ‘microsocial interactions’ between lowland dwellers and highland farmers, in relation to the uncertain causes of seasonal smoke haze in Northern Thailand. Increasingly, lowland dwellers blame the agricultural burning practices of mobile highland populations for causing the air pollution ‘crisis’. In the process, highlanders are constructed as a threat to national and environmental security, which has led to the creation of securitized policies such as burning bans. These policies radically challenge the livelihoods of highlanders and “reinforce historically salient narratives about ‘irresponsible’ highlanders in the region” (Mostafanezhad & Evrard, 2020: 131). As such, the designation of responsibility for the haze is “divided along ethnic and class lines” (ibid); thereby pointing to how geopolitical discourses are inscribed in embodied ways. This example forcefully points to how environmental geopolitical relations are mediated through the inscription of embodied geopolitical discourses, which demarcate difference between groups of actors.

Finally, environmental geopolitics discourses are also evident through practices “that implement spatial discourse, resist a spatial discourse, or construct an alternative space to foster a particular form of activity or resistance” (O’Lear, 2018: 17-18). Geopolitical discourse can therefore be located in “what people are doing, how they are engaging with or responding to an environmental setting, and the intended as well as unintended outcomes of those interactions” (O’Lear, 2018: 169). Geopolitical discourse as practice is exemplified in Gray *et al.’s* (2020) discussion of ‘Science, Territory, and the Geopolitics of High Seas conservation’. The authors argue that conservation has been brought under expanding practices of territorialisation in the high seas. They explain that through efforts to define the Sargasso Sea in a policy-relevant way, “actors interested in promoting high seas governance may continue to reproduce dominant territorial practices” (Gray *et al.* 2020: 40). This is despite ostensible efforts to transform the geopolitics of high seas governance by seeking to conserve the mobile ecosystem of the Sargasso Sea. Instead, the ‘Sargasso Sea Geographical Area of Collaboration’ has been delimited as a clean boundary line strictly located in the high seas, despite the fact that the ecological reality of this sea is mobile, shifting, and extends across jurisdictional boundaries. The hegemony and power of classical geopolitical discourse underwrites the territorialising practices and implementation of spatial discourse in the high seas, even when that does not fit material realities. This reiterates that practices are “created and legitimized by particular understandings of the world” (O’Lear, 2018: 169) which shape how actors interact with the environment in geopolitical ways.

In this regard, approaches from environmental geopolitics demonstrate that understanding geopolitical discourse as narrative, materiality, embodiment, and practice is a productive way of conceptualising the proliferating means by which human-environment interactions are made geopolitical. A further key theoretical contribution of environmental geopolitics scholarship, is how the research agenda conceptualises scientific knowledge and notions of security and risk, as ‘discourse stabilisers’ (O’Lear, 2018).

O’Lear (2018) argues that critical attention should be paid to deconstructing how discourses of environmental geopolitics are legitimized, stabilised, and sustained with science, security, and risk. Science is used to present a view of the world as fact. However scientific methods and methodologies are shaped by human subjectivity, and scientific evidence only ever represents a partial view of the world. Thus science is inherently political, but is often deployed as an ostensibly ‘objective’ indicator of a particular phenomenon, in order to convince people to think and act in particular ways (O’Lear, 2018). As in the case of Sargasso Sea conservation, ‘science’ can be disseminated in reductive and decontextualized ways, which serve to stabilise particular geopolitical discourses such as territorialising practices in the high seas (Gray *et al*., 2020). Environmental geopolitics urges critical questioning of ‘science as fact’, in order to destabilise the assumptions that environmental geopolitics discourses are sustained by; and to consider whose facts, and what alternative facts may be missing from the dominant perspectives.

Finally, “an environmental geopolitics analysis of discourse can be particularly useful when it focuses attention on notions of risk and security” (O’Lear, 2018: 173), as strategies that stabilise discourses. Environmental geopolitical discourses mobilise risk and security to identify particular places, groups, and practices as a threat. In doing so, these discourses simultaneously define who, what, or where needs securing. As such, ‘risk’ and ‘security’ are invoked to justify and stabilise geopolitical interventions and action. Environmental geopolitical analyses therefore stress the need to question the underlying logics of risk and security as they are applied to particular environmental-geopolitical discourses, asking:

What are the underlying values or goals? Who benefits from this view and where? How do aspects of the environment or environmental features play into this worldview? What is the call to action (or inaction) embedded in this discourse? (O’Lear, 2018: 173).

### 2.1.2 Geopolitical Ecology

In a similar vein to environmental geopolitics, geopolitical ecology has only recently emerged as a term to signify efforts to organise a coherent sub-discipline and intellectual project. Proponents of geopolitical ecology recognise that the approach has various precursors and is new only in name (Vandergeest and Peluso, 1995; Peluso and Vandergeest, 2011; Rossiter, 2011; Sundberg, 2011; Mitchell, 2013; Mullaney, 2014; Harris, 2017; Ramutsindela, 2017). The current efforts to codify geopolitical ecology as a conceptual framework is seen as “timely” (Belcher *et al.*, 2019: 3) given the proliferating ways in which the environment is becoming a heightened concern and arena for geopolitical activity. This intellectual project focuses on bringing together political ecology and critical geopolitics to analyse issues of environmental change that have been “influenced by militaries or broader national security institutions or imperatives” (Bigger & Neimark, 2017: 14).

Bigger & Neimark have championed the development of geopolitical ecology, and define it as a:

Conceptual framework that combines the strengths of political ecology with those of geopolitics in order to account for, and gain a deeper understanding of the role of large geopolitical institutions, like the US military, in environmental change (2017:14).

To this extent, geopolitical ecology combines political ecology’s attention to how “themes of scale, inequality, power, and even the state” (Harris, 2017: 90) are encapsulated in human-environment relations; and critical geopolitics’ attention to “the discursive-material co-constitution of global institutional geopolitics” (Bigger & Neimark, 2017: 14) via processes of statecraft, foreign policy, and territorialisation. As such, geopolitical ecology examines how nature, conservation, and resource management are increasingly situated “as central tools – and sites of inquiry – in the contemporary politics of boundary making and the geographical extension, or limitation of state power” (Havice, 2018:3). Put simply, geopolitical ecology seeks to interrogate the manner in which geopolitical institutions “define, control, and manage nature” (Bigger & Neimark, 2017: 20) as a way of consolidating, defending, or challenging the extension of sovereign, territorial, or economic power.

In many ways, geopolitical ecology builds on environmental geopolitics – even if not explicitly framed as such. The deconstruction of ‘geostrategic’ discourses (Bigger & Neimark, 2017) and the disentangling of the notions of security and risk that are wrapped up in these discourses, is central to emerging work in geopolitical ecology. However, geopolitical ecology makes a number of important theoretical contributions that are rooted in its political ecology foundations. For example, where environmental geopolitics approaches examine how geopolitical discourse is variably enacted *onto* environmental features in order to produce and sustain a particular worldview and/or spatial configuration of power; a key contribution of geopolitical ecology is foregrounding how ‘ecology’ is materially incorporated *into* geopolitical strategies and interventions. For example Belcher *et al.*, (2019) examine the material-ecological metabolic flows of hydrocarbon fuels, water, sand, and concrete in fuelling and shaping the US military’s geopolitical and geoeconomic activities. This examination touches upon how US military institutions intervene into environmental issues by mobilising discourses around the ‘threat’ of climate change (see also Bigger & Neimark, 2017); but also points to how their consumption of nature is inherently geopolitical and produces an excessive ‘carbon boot-print’ that ironically exacerbates global climate insecurity (Belcher *et al.*, 2019). Thus, the emphasis on ‘ecology’ in geopolitical ecology is important as it orients the focus of analyses to how certain ‘threats’ *to* nature, and *from* nature, shape foreign policy efforts; as well as highlighting how geopolitical dynamics have material implications for nature and the way it is used and managed (Massé & Margulies, 2020).

A further key contribution of geopolitical ecology scholarship - which is rooted in the theoretical foundations of political ecology - is the emphasis that is placed upon interrogating the inequitable distribution of environmental impacts produced by geopolitical and geoeconomic interventions. Whilst environmental geopolitics goes some way to examine who benefits from particular geopolitical discourses, O’Lear recognises that perhaps less attention has been given to examining where the wellbeing of people, species, or ecosystems will “be rendered less robust or worse off”, as a result of the material impacts of geopolitical discourses around environmental change (2018: 172-173).

Geopolitical ecology is well placed to conduct such in-depth examinations of the multi-scalar environmental inequalities produced by geopolitical dynamics. Mullaney’s (2014) work does not self-identify as geopolitical ecology, but fuses feminist geopolitics with (feminist) political ecology to incisively interrogate how the replacement of peasant ‘*criollo*’ maize types with hybrid maize varieties, “serves the interests of political and economic elites” and international agribusiness, “while compounding the food insecurity of Mexican peasants” (Mullaney, 2014: 415). Moreover, approaches developing a ‘geopolitical ecology of conservation’ (Massé & Margulies, 2020)are beginning to theorise the unequal impacts of geopolitical discourses upon species and ecosystems - aspects which have been somewhat sidelined in environmental geopolitics analyses that focus primarily on the impacts of the discursive construction of environmental security risks upon human subjects.

Thus, the major contributions that geopolitical ecology makes to accounts of the geopolitics of environmental change are: a) the conceptualisation of ‘ecology’ in human-environment relations; and b) the emphasis on uncovering inequalities that are produced by geopolitical interventions in the environment. These contributions are developed to variable extent in approaches that speak to three major themes emerging in geopolitical ecology scholarship: weaponized nature; conservation; and resource management.

Bigger & Neimark (2017) have cemented the weaponization of nature as a key theme in geopolitical ecology research. They suggest that nature is weaponized when it is “used by armed actors to do harm” (Koopman, 2016: 530). They position carbon-intensive American imperialism as exemplary of how nature is weaponized by the US military “both as a military asset and as a set of problems to be overcome through military means” (Bigger & Neimark, 2017: 14). Bigger & Neimark outline how the US Navy presents climate change as a “material threat to US hegemony” (ibid: 18), in order to justify extensive shifts towards biofuel powered military hardwares, technologies and warfare techniques. Such an extensive mobilisation of nature for weaponized means is expected to heighten future resource scarcity, and lead to the formation of conflict and the exacerbation of current ones. As such, the weaponization of traditional hydrocarbons and biofuels is integral to the US’s “everywhere war” (Belcher *et al.*, 2019: 2).

Nature can also be weaponized by geopolitical actors to cause harm and violence in less militaristic and more mundane or intimate ways. Mullaney’s account of the geopolitics of maize in Mexico, argues that state-led agricultural restructuring is a “key mechanism of violence” (Mullaney, 2014: 419) against peasant farmers. State efforts to restrict peasant farmers’ use of diverse ‘*criollo*’ maize seeds, in favour of hybrid maize represents an example of the weaponization of nature, whereby the Mexican state seeks to “balance its geopolitical and geoeconomic interests through control of agricultural production” (ibid: 416). Restricting peasant sovereignty over ‘*criollo*’ maize “is one tactic in a long violent struggle for control over peasant land and labour in Mexico” (ibid: 406). The weaponization of hybrid maize is a geopolitical policy move which enacts slow violence against Mexican peasant farmers: they are pitted at the mercy of the spatial paradoxes of the global food system, which “show how scarcity and abundance, privelege and suffering, and life and death are mutually constituted” (Nally, 2011:49).

Mullaney (2014) arguably demonstrates a “broader application of geopolitical ecology to comprehend the role of large geopolitical institutions” in weaponizing nature, even before Bigger & Neimark called for it (2017: 20). Her work is indispensable for developing geopolitical ecology further, as she draws upon feminist geopolitics to redefine “what counts as geopolitics and what is appropriately studied through a geopolitical lens” (Massaro and Williams, 2013: 567). As such, Mullaney (2014) emphasises that geopolitical ecology analyses should be rescaled from a singular focus on global politics, to examine how everyday, embodied practices matter as much to geopolitics as grand political narratives and counter narratives. In sum, Mullaney “shifts the scale of analysis and relocates agency to appreciate the importance of the mundane realm of everyday practice” (2014: 415), in order to demonstrate that the weaponization of nature can be intimate, whilst simultaneously being intertwined with the global. Mullaney’s approach proves highly influential in shaping my agenda for more-than-human geopolitical ecology.

The second key emerging theme in geopolitical ecology research is geopolitical ecologies of conservation. This research trajectory has obvious intersections with an extensive body of literature on the militarisation of conservation (Lunstrum, 2014, 2015, 2018; Duffy, 2016; Kelly and Ybarra, 2016; Marijnen and Verweijen, 2016; Verweijen and Marijnen, 2018; Ybarra, 2018; Duffy *et al.*, 2019); as it also examines the impacts of intertwining conservation with concerns about national security and the threats of transnational organised crime. However, geopolitical ecologies of conservation recognises that the “integration of biodiversity conservation, geopolitics and security interests may not necessarily lead to militarized or outright securitized responses” (Massé & Margulies, 2020:3). Thus, rather than analysing localized examples of militarised conservation, geopolitical ecologies of conservation takes a broader lens to consider the wider geopolitics shaping conservation priorities internationally. For example, Massé & Margulies (2020) examine the institutional politics of the US Fish and Wildlife Service (USFWS) to ascertain how concerns about IWT as a security issue, shape the geopolitical ecologies of conservation foreign assistance. They demonstrate how USFWS’ foreign conservation assistance has shifted towards projects prioritising anti-wildlife trafficking, rather than funding species and habitat conservation or community-led conservation projects. This they argue, is demonstrative of “geopolitics working *through* conservation” and impacting biodiversity conservation on the ground (Massé & Margulies, 2020:3).

Ramutsindela's (2017) theorisation of the political ecology of borders in African peace parks, also speaks to the notion of “geopolitics working *through* conservation” (Massé & Margulies, 2020:3). Ramutsindela argues that the creation of peace parks in Southern Africa represents a “new form of environmentally inspired micro-regionalism”, which reconfigures the borderlands into a transnational frontier space in order to achieve environmental, economic and political goals (2017:106). The de-institutionalising of geopolitical borders via peace parks, speaks to a burgeoning Pan-Africanism and anti-colonial mentality; but Ramutsindela suggests that in reality the peace parks further subjugate already marginalised groups, and entrench racialized divisions of land rights (2017: 110). Geopolitical ecologies of conservation is therefore less about how powerful geopolitical institutions directly manage nature and contribute to environmental change – as with the weaponization of nature – but how broad geopolitical contexts, discourses, and dynamics shape conservation activities with unequal material and political impacts on the ground (Massé & Margulies, 2020).

The final key theme in geopolitical ecology scholarship is the geopolitical ecologies of natural resource governance. Clearly this intersects with the previous themes on weaponized nature and conservation given the focus on examining what Havice calls the “sovereignty-territory relation in the context of resources” (2018: 3). In other words, this line of scholarship examines how geopolitical institutions exercise control over natural resources in order to extend state power and influence over particular territorial spaces. However the scholarship on geopolitical ecologies of natural resource governance further expands the parameters of geopolitical ecology and does not neatly fit into either of the aforementioned categories. Indeed, a defining contribution of scholarship on the geopolitical ecologies of natural resource governance, is foregrounding how traditionally fixed categories such as territory and sovereignty are rendered increasingly unstable and fluid by geopolitical efforts to extract capital from, and exert influence over nature.

This is particularly prevalent in Havice’s (2018) account of the ‘more-than-territorial’ configurations of state power between the US and Pacific Island States, demonstrated in their efforts to access and control migratory tuna stocks. Havice explores how long-standing treaty agreements over the extraction and management of tuna, have been used by the US and Pacific Island Parties to test the powers and limits of sovereignty when exercised over ocean territories and resources. Havice’s work represents a move towards ‘wet ontologies’ (Steinberg and Peters, 2015) that call for radical reconceptualization of classic geopolitical notions such as territoriy, terra-firma, and fixity, when considering how power is exercised in spaces beyond land (see also Acton *et al.*, 2019). Admittedly, thinking ‘extra-territorially’ or in ‘more-than-territorial’ ways is not applicable to all research on the geopolitical ecologies of resource governance. But, this example points to a wider need to consider the geopolitical ecologies of resource governance as mobile, contested, and in a constant state of flux. Moreover, Havice’s (2018) discussion demonstrates that in order to understand the nuances of geopolitical ecologies, it is useful to displace the hold that traditional geopolitical actors and categories such as ‘sovereignty’ and ‘territory’ have on our thinking. Considering the role of economic actors – in this case the US-flagged tuna fishing fleet – adds nuance to accounts of the geopolitical ecologies of natural resource governance in the context of environmental change.

### 2.1.3 Environmental geopolitics and geopolitical ecology in dialogue

I promote a more sustained and ongoing dialogue between environmental geopolitics and geopolitical ecology. Environmental geopolitics is developing as a distinct branch of critical geopolitics; and it is evident that some of the ideas and approaches in environmental geopolitics are foundational to geopolitical ecology, given geopolitical ecology’s efforts to combine critical geopolitics with political ecology. For example, the influence of environmental geopolitics is demonstrated through geopolitical ecology’s focus on analysing the material-discursive construction of socionatures. Given that both approaches theorise the geopolitics of environmental change, there are also clear commonalities in the choice of empirical subject matter, such as: supply chains (Belcher *et al.*, 2019; Le Billon & Shykora, 2020); biodiversity conservation (Massé and Margulies, 2020; Gray *et al*., 2010); climate change and environmental degradation (Bigger & Neimark, 2017; Mostafanezhad & Evrard, 2019). In this regard, the two theoretical approaches have overlaps, but they also have unique strengths which I apply in my more-than-human geopolitical ecology framework.

From environmental geopolitics, I employ O’Lear’s (2018) framework for understanding discourse broadly as: narrative, embodiment, practice, and materiality. This enables me to examine how discourses around illegal caviar trade, are variably manifest in the ways the caviar trade is regulated in the European Union. Importantly, I also integrate O’Lear’s (2018) argument that scientific knowledge, and the notions of security and risk, are discourse stabilisers. I assess how science, risk and security are variably used to solidify particular discourses about illegal caviar trade in Europe.

For my theoretical framework I apply geopolitical ecology’s orientation towards ‘ecology’, which is arguably broader than environmental geopolitics’ conceptualisation of ‘the environment’. Geopolitical ecology approaches ecology by examining how certain threats *to* nature, or threats posed *by* natural phenomena, shape international relations; and also examines how geopolitics is played out in nature and through nature, with unequal material impacts upon environments. This slight shift in emphasis focuses less on how nature is linked to security and threat through geopolitical discourse, and more on how nature is directly implicated in geopolitical interventions. Finally, I also engage with geopolitical ecology’s attention to theorising the unequal impacts of the geopolitics of environmental change. This enables me to interrogate how discourses linked to illegal caviar trade have unequal impacts across space, between people, and species.

Both environmental geopolitics and geopolitical ecology have strengths that I incorporate into my own conceptual framework. However neither environmental geopolitics nor geopolitical ecology on their own, or in dialogue with each other, can adequately capture the nuances of my empirical case. This is because neither approach makes overt space in their conceptual frameworks, for theorising the role of nonhumans in shaping the geopolitics of environmental change. I argue that it is imperative that nature is not just conceptualised in instrumental terms – as a central *tool* or *site* of inquiry (Havice, 2018) – but that nature should be theorised as a central *actor* in the contemporary geopolitics of the environment.

The importance of conceptualising the nonhuman as a central geopolitical-environmental actor, is pointed to by a small number of geopolitical ecology accounts. For example, Mostafanezhad & Evrard position the transboundary haze as a geopolitical-ecological actor that “co-produces eco-political discourses of escape among mobile tourists and residents in Northern Thailand during the ‘smoky season’” (2018: 54). Interestingly, Mostafanezhad & Evrard suggest that the “emergent subfield of geopolitical ecologies examines the role of the nonhuman in the production of political space” (2018: 55). Whilst it is true that geopolitical ecology engages with nature, on the whole I belive that the role of the nonhuman as a geopolitical-ecological actor is actually under-examined and largely overlooked in geopolitical ecology scholarship. Indeed, Mostafanezhad & Evrard’s account is an exception. But even their conceptualisation of the transboundary haze as a ‘geopolitical-ecological actor’ could be interrogated further, as although the haze is introduced as an actor there is little analysis of what this means in practice, or how to theorise the agentic role of particulate matter.

Further, Mullaney’s (2014) research on the geopolitics of maize in Mexico was published prior to the uptake of ‘geopolitical ecology’ as a term to signify scholarship that brings together critical geopolitics and political ecology. However, in what she develops as a theoretical framework for an “anti-colonial geopolitics of environmental change”, she positions “hybrid maize as an agent of Mexican development policy” (2014: 409); and argues that “we need to focus on how actors –both human *and otherwise* – are encountering, resisting, and transforming the contexts imposed on them” (ibid: 412, emphasis added). To date, this call to integrate nonhumans into accounts of the geopolitics of the environment, has not garnered much traction. In particular, the role of nonhuman animals as geopolitical-ecological agents has been overlooked, as Mullaney (2014) and Mostafanezhad & Evrard (2018) focus on the vibrant materiality of maize seeds and atmospheric particulate matter, respectively.

Havice (2018) engages with the geopolitical ecologies of nonhuman animals in the form of tuna fish. She argues that the mobility of fish matters in shaping geopolitical configurations, but she does not draw on more-than-human theories to conceptualise the tuna as geopolitical actors. As such, her account reduces the more-than-human to ecological conditions, natural resources or bioeconomic relations (Bear, 2017). Whilst accounts such as Havice’s (2018) make the case for wet ontologies and emphasise the liveliness of oceans, there is a need to seriously consider the lively potentials of the nonhuman actors therein. Indeed, Bear asks “how might the ecological conditions of the Blue Economy be teased apart and viewed anew, with the lively heterogeneity of actants and forces brought to the fore” (Bear, 2017: 28). This is what I intend to do by conceptualising sturgeon and caviar as actors in the geopolitics of the environment and economy in the EU. I argue that if geopolitical ecology can be ‘more-than-territorial’ (Havice, 2018), then it can also be ‘more-than-human’.

Thus, I agree with Bigger & Neimark that there “still remains fertile ground for exploration” (2017: 20) between political ecology and critical geopolitics; and one way this can be realised is through an integration of more-than-human theories into explanations of geopolitical ecologies. This will produce an expanded vision of the ‘political’ in multi-scalar discussions of geopolitics of the environment. Theorising the role of nonhuman actors alongside large geopolitical institutions and embodied human actors is necessary, as by definition all discussions of the geopolitics of the environment are inherently more-than-human.

Both political ecology and critical geopolitics have well established strands of scholarship that engage with the political potentials and agencies of nonhuman animals and material-things. By building upon these more-than-human approaches in political ecology and critical geopolitics, as well as the embryonic efforts in geopolitical ecology, I develop a “broader application of geopolitical ecology” (Bigger & Neimark, 2017: 20), which is avowedly more-than-human. This theoretical framework enables me to conceptualise caviar and sturgeon as geopolitical actors which co-produce the gepolitical ecologies of caviar trade regulation in the European Union. In the following section I review existing literature in political ecology and critical geopolitics that theorises the political agency of nonhuman animals and material-things. I point to how these more-than-human literatures can inform my approach for more-than-human geopolitical ecology.

## 2.2 Integrating more-than-human ontologies

As outlined previously, environmental geopolitics and geopolitical ecology are overwhelmingly human-centric in their theories and methodologies; and this issue isn’t resolved by bringing the two fields into dialogue. Indeed, the issue of anthropocentrism has beleagured work that engages with international relations, and geopolitics in particular; with the result being that “scholarship has been narrowly focused and does not actually reflect the ways in which human social life and political life is neither exclusively social, nor exclusively human but bound up with non-human beings and things” (Cudworth & Hobden, 2013: 644). The human-centrism in accounts of the geopolitics of environmental change stands in stark contrast with recent moves in the broader social sciences, which demonstrate “a flourishing of interest in posthuman, more-than-human, distributed and hybrid themes of agency” (Theriault, 2017: 116).

More-than-human approaches are multiplicitious in theory, methods, and subject matter; but at their core they are committed to ‘radical ontological positions’, and disrupting the entrenched dichotomies between society and nature, or the human and nonhuman world (Chagani, 2014). Moreover, rather than merely disrupting dichotomies, posthuman and more-than-human approaches seek to “advance non-humans as legitimate subject matters of social inquiry whose actions contribute to the co-production of more-than-human worlds” (Margulies & Bersaglio, 2018: 104). Such an orientation rejects Cartesian notions of intentionality (Banoub, 2019). Instead, it requires “making a break with the exclusive hold of humanity on political agency”, and necessitates being open to “agencies unlinked to an intentional subject” (Dittmer, 2014: 397). This entails re-thinking agency as relational, and forged through connections, contestations, and conflicts between an extensive array of human and nonhuman actors (Dempsey, 2010). Ultimately, agency is not reduced to human intentionality, but corresponds to how humans and nonhumans alike “make a difference to the world” (Dempsey, 2010: 1141).

A “deepening commitment to posthumanism” (Theriault, 2017: 114) has been developing as a strong line of theoretical inquiry within political ecology (Sundberg, 2011; Theriault, 2017; Margulies & Bersaglio, 2018; Banoub, 2019); and has also been developing in diverging ways within critical geopolitics (Dittmer, 2014; Squire, 2014, 2015; Weir, 2014; Raento, 2016; Dodds, 2019). To a significant extent, the differing approaches to theorising the role of the nonhuman are shaped by disciplinary foci, and determined by what aspects of the broader signifier ‘nonhuman’ emerges as politically significant. Indeed, nonhuman “encapsulates a number of ‘things’ from the *material* to the *immaterial* and the *organic* to the *inorganic*” (Chagani, 2014: 425). Typically political ecology has focused more on the agency of organic, living beings such as: tigers (Margulies and Bersaglio, 2018), scallops (Bear, 2013), mosquitoes (Nading, 2014), microbes (Lorimer, 2016), and plants (Head, Atchison and Phillips, 2015). Whereas critical geopolitics has turned attention to inorganic political agencies located in: radio (Weir, 2014), marine plastic (Mitchell, 2015), desert ‘trash’ (Squire, 2014), and water infrastructure (Meehan, 2014). That being said, there are studies which trouble the organic-inorganic divide between the sub-disciplines. For example Barua (2014) engages with the materiality of alcohol from a political ecology perspective; and Dodds (2019) with the material agency of Arctic ice from a critical geopolitics perspective.

As such, the diverse approaches and empirical examples from across political ecology and critical geopolitics have a lot to offer accounts of the more-than-human geopolitics of environmental change. This is because geopolitical-environmental issues typically involve unique assemblages of actors - possessing a combination of material, immaterial, organic and inorganic attributes – all which influence the geopolitical-ecological configurations that emerge. These studies are instrumental in shaping how I conceptualise both caviar and sturgeon as geopolitical actors throughout this thesis.

### 2.2.1 (Geo)political animals

As long ago as 2003, Castree noted that geographers studying society-environment relations had “conspicously failed to engage with questions of the political status of the nonhuman” (2003: 207). This was followed in 2007, by Hobson’s call for “research which conceptualizes animals as part of, not incidental to, specific political configurations”, arguing that this “enables a broader conceptualization of how the ‘political’ is constituted” (Hobson, 2007: 251). Hobson emphasises that animals are always already political subjects, as they are “subjects of, and subject to political practices” (ibid). She explains this by describing how animals are subjects of ‘small p’ politics, through trade for experimentation, breeding and consumption; and subject to ‘big P’ politics via multi-level frameworks that seek to regulate the movement and conservation of nonhuman animals (ibid: 263). Hobson expands her discussion on the political subjectivities of non-human animals by examining practices of bear-bile farming and the rehabilitation of Moon Bears in East Asia. Through this empirical example, Hobson demonstrates the significance of paying attention to the affective political subjectivities of nonhuman animals. In examining the “ecology, behaviour and physiology” (ibid: 261) of the bears, Hobson illustrates how the Moon Bears co-produce political configurations of farming and rehabilitation alongside the bear bile farmers and NGO activists; and ultimately shows that Moon Bears are political subjects and not apolitical objects that are merely subjected to political practices.

Hobson’s work has paved the way for the politicization of nonhuman animals in scholarship emerging from within political ecology and critical geopolitics. For example, Dempsey positions the grizzly bear as an “often unrecognised actor” in the historical and ongoing “war in the woods” playing out in the ‘Great Bear Rainforest’ (GBR) of British Colombia, between environmentalists, First Nations, the government and the forestry sector (2010: 1138-1139). Dempsey argues that grizzly bears co-produce the spatial and political-economic geographies of the GBR through their “affective materiality”: their perceived charismatic properties, fear inducing associations, and their aesthetic and anatomical materialities (2010: 1142). These factors influence the shifting use of physical space in British Columbia, as changing biodiversity conservation practices seek to accommodate grizzly bears. Dempsey’s account emphasises that conservation and environmental politics are “not simply a clash of different interests and values” (ibid) between humans, but are also shaped by more-than-human actors. Moreover, Dempsey (2010) shows how the contemporary political influence of the grizzly bear is deeply entangled in socio-ecological histories in the region, which are rooted in colonialism. This points to the importance of situating accounts of more-than-human geopolitical ecologies in their historical context, and considering how historical legacies shape contemporary relations between humans and nonhumans, and the environment more broadly.

Furthermore, Sundberg’s (2011) “posthumanist political ecology” directly builds on Hobson’s (2007) conceptualisation of nonhuman animals as political subjects, and stands as a key foundation for ‘*more-than-human geopolitical ecology’*. Sundberg foregrounds the ecologies, behaviours, and physiologies of two species of small endangered cat – the ocelot and jaguarandi – in co-producing the geopolitics of border security practices in US-Mexico borderlands, alongside other human, and nonhuman actors. Sundberg describes the ‘cat fight’ that played out as a result of US Border Patrol’s desire to install 50 miles of floodlights into desert thornscrub vegetation corridors, in order to identify migrants attempting to enter the USA at night. This was challenged by USFWS, conservation NGOs, and civilian activists, over fears that the floodlights would disturb the nocturnal hunting behaviours of the endangered felines. Ultimately the position of the lights was amended in accorance with the need to protect the endangered species. As such:

The cats and their existent and professed need for dense brush and the cover of darkness came to matter tremendously to the politics of boundary enforcement; indeed, the furtive felines as presently configured are part of a collective that compelled the Border Patrol to change its operational plans (ibid: 331).

As well as employing a posthuman lens, Sundberg also takes inspiration from feminist scholarship to shift the typical scales of geopolitical analysis and demonstrate how the global and local are intrinsically intertwined. Feminist approaches weave “threads between sites and scales to produce nuanced understandings of the socio-ecological dimensions of political economic processes” (Sundberg, 2016). Thus, Sundberg shows how the cats and other actors influence the everyday practices of border security, and thereby adds necessary nuance to the dominant macro-level geopolitical accounts of the forces driving the dynamics of securitization at the US-Mexico border. Decentred geopolitical analysis that is attuned to the inter-scalar connections between sites, objects, and beings, is key to more-than-human geopolitical ecology.

Despite the compelling work of Hobson (2007), Dempsey (2010) and Sundberg (2011), Srinivasan laments that more-than-human scholarship in geography has continued to exhibit “a curious lack of interest in the political”, with the amorphous discipline largely failing to engage with the notion of “political animals” (Srinivasan, 2016: 76). Perhaps spawned by Srinivasan’s critique and call to arms, it seems that the ‘question of the animal’ is increasingly becoming a ‘political’ one, particularly in political ecology. A number of recent interventions (Evans and Adams, 2018; Margulies and Bersaglio, 2018; Margulies and Karanth, 2018; Banoub, 2019) have explicitly positioned nonhuman animals as political actors, in their considerations of the political ecologies of human-animal interactions.

A key contribution of the recent political ecology interventions, is a focus upon “the broader economic and regional forces underpinning the politics of human-animal encounter”, which are “often missing in various threads of human geography” (Margulies and Karanth, 2018: 153). In other words, these approaches situate nonhuman animals as political actors enmeshed in the wider economic, political, and historical conditions, that extend beyond the immediate geographies of the animals. For example, Banoub’s historical examination of the 1894 economic collapse in Newfoundland shows that the bank crash was “fundamentally ecological” (2019:2). Banoub outlines how the seasonal reproductive dynamics and the material properties of codfish were a determining ecological factor - alongside other human socio-economic factors related to the saltfish trade – which contributed to the economic crash. This empirical case highlights the multi-scalar political and economic forces that make codfish political, as well as showing “how the seemingly human world of finance and political economy was critically shaped by the materiality of cod as living beings and saltfish as microbial communities” (2019: 11).

Recent important contributions in more-than-human political ecology, have focused on exploring the various “multispecies forms of injustice” (Margulies and Karanth, 2018: 162) that are produced by environmental contestations. This requires engaging with “the roles that humans and non-humans play in enactments of injustice – both as subjects of (in)justice and as beings whose actions have justice implications for myriad forms of life” (Margulies and Bersaglio, 2018: 106). Margulies and Karanth (2018) explore the potentials for a more expansive – more-than-human - vision of justice in political ecology, through their efforts to disentangle the broader political economic forces shaping human-wildlife conflict in Bandipur, India. Attending to the complex and competing entanglements of biodiversity conservation, economic development, and commodity geographies, Margulies & Karanth (2018) show how these forces shape the politics and spaces of human-wildlife encounters. In particular, they describe how the broader forces have created a shift in cattle farming practices, moving from extensive cattle rearing to small-scale dairy production. This has resulted in increased tensions between human communities and large carnivores that target cattle. Margulies & Karanth subsequently conclude that “conservation *qua* development may have… detrimental impacts not just on human communities (and their domestic animals) but the wild animals that those acting in the name of conservation seek to protect” (2018: 162). As such, political ecology accounts that engage with nonhuman animals as political subjects, are increasingly illuminating the nuanced geographies of (in)justice; showing that the impacts of environmental contestation are unequally distributed between humans, but also between humans and other nonhuman animals. This line of enquiry espouses a normative commitment to multispecies justice, which I seek to include in my framework for more-than-human geopolitical ecology.

Although critical gepolitics has begun to explore the possibilities for a posthuman geopolitics that incorporates “animals, nature, and other objects into our understanding of the geopolitical” (Dittmer, 2014: 384); the sub-discipline’s engagement with nonhuman animals as political actors, is arguably less developed than in political ecology. In fact, Raento has criticised the “disregard of animal subjectivity in geopolitics”, calling it “outdated and arrogant”, especially when considering how frequently critical geopolitics engages with “themes that concern animal activity and relationships with people” (2016; 945). That being said, there are limited critical geopolitical[[6]](#footnote-6) engagements with nonhuman animals (Kosek, 2010; Cudworth & Hobden, 2015; Raento, 2016; Forsyth, 2017; Squire, 2020), which offer particularly useful insights into how nonhuman animals are enrolled in and shape the face of warfare and military interventions.

Wars and conflicts take many forms, but are inherently geopolitical, environmental, and more-than-human. Scholars such as Kosek (2010) have examined how animals as small as the honeybee have “been remade as a military technology and strategic resource for the battlefield” (651), throughout history and into the contemporary war on terror. Kosek (2010) describes how experimentation into the use of bees for warfare via micro-sensor technologies, effectively reduces the bees to mechanized warfare devices, and has radically altered their biological traits. But, more than examining just the instrumental uses of nonhuman animals in war environments, emerging work in critical geopolitics explores the ‘more-than-human battlespace’ (Forsyth, 2017) and the ‘posthuman way of war’ (Cudworth and Hobden, 2015). These accounts examine how various animals, such as horses (Raento, 2016), bears (Forsyth, 2017) and camels (Cudworth & Hobden, 2015) have been mobilised for war; but they also attend to the embodied political subjectivities of nonhuman animals, exploring how animals themselves “act, alter, and shape the battlespace” (Forsyth, 2017: 418), thereby recentring non-human political agency as a force that co-produces human-environment relations.

For example, Raento (2016) outlines a ‘Geopolitics of the horse in Finland’, charting the multiple, shifting, geopolitical roles of equines since 20th Century wartime, to the modern day. Raento shows how historical human-horse relations during wartime have shaped contemporary geopolitics of Finnish territory and identity. She positions the Finnhorse as a crucial geopolitical actor in the 20th Century Finnish war efforts, examining how the mass conscription of horses, combined with the affective capacities of the horses and their physiological traits and abilities, ultimately “co-produced the Finnish nation’s war experience” (2016: 947). For example she notes how “Finnish guerilla tactics… relied on the silence of the horse and the local breed’s ability to move in roadless boreal forests, survive on whatever food was available en route, and endure cold” (ibid: 951). Beyond wartime, Raento discusses how the political subjectivity of the Finnhorse has continued to contribute to geopolitical “changes in international relations, state networks, insitutions and legislation, influencing the ways in which the Finnish state *defines, controls and protects* its national territory, boundaries and populations” (ibid: 962, emphasis added). Raento’s focus on how the wartime and peacetime Finnhorse influences the way the state ‘defines, controls, and protects’ its territory and populations, poignantly echoes Bigger & Neimark’s definition of geopolitical ecology as an approach that examines how geopolitical institutions “define, control, and manage nature” (2017:20). This therefore points to the productive potential of incorporating the political subjectivities of nonhuman animals into geopolitical-ecological examinations of how the state defines, controls, and manages nature.

Furthermore, Forsyth’s (2017) biography of Wojtek the bear, foregrounds the political agency of a bear who was made a Polish soldier during WWII. Wojtek’s biography is a compelling account of the hybrid nature of warfare, and the entangled political subjectivities between the nonhuman animals that were enrolled alongside humans for military activities. Forsyth argues that “Wojtek’s being and behaviour were shaped by the Polish soldiers, and they in turn formed aspects of their army’s identity based upon their relationship with him” (2017: 506). Recalling Sundberg’s (2011) re-scaling of geopolitical analysis to the resolution of the everyday, the detailed account of the relationship between Wojtek and the Polish Army soldiers, demonstrates that the broader battlespace and geopolitical materialities of war are shaped by embodied interactions between humans and nonhumans. Admittedly this is a unique example about an individual bear; but the wider applicability of the article is rooted in the acknowledgment of the politicised role and lived experience of the animals that are brought under, but also shape, military and geopolitical interventions.

In sum, investigations into the ‘more-than-human’ battlespace are vital for developing a more-than-human geopolitical ecology that is attuned to how nonhuman animals are used as instruments of war and state-making more generally; but also for considering how nonhuman animals actively shape these processes through their subjectivities and interactions with humans.

However, notably absent from both Raento’s (2016) and Forsyth’s (2017) accounts of the human-nonhuman interrelations in the geopolitics of warfare, is an explicit consideration of the wider ecological and environmental impacts of these more-than-human configurations. Forsyth recognises that war “leaves its marks – physical, economic, political, and cultural – on landscape” (2017:497); but ultimately the conceptualisation of nature or the ‘more-than-human’ in both Forsyth’s (2017) and Raento’s (2016) accounts extends as far as the nonhuman animals in question, and does not engage with ‘landscape’. As such, Raento acknowledges that there are “obvious lines of further and deeper inquiry”, for accounts of more-than-human geopolitics, which “reach beyond territorial conflict and border control” (2016: 962); and she suggests that one such broad area is in fact, ‘landscape’. This is a gap that political ecology can contribute to solving via more-than-human geopolitical ecology. Political ecology adeptly theorises the political agency of nonhuman animals, as well as their relational position and impacts upon wider ecologies and environments. This is exemplified by Sundberg who situates the agencies of nonhuman animals alongside deserts, rivers, thornscrub brush, and humans, as actors that “inflect, disrupt, and obstruct the daily practices of boundary enforcement” in the US-Mexico borderlands (2011: 318). Her account is clearly situated within a landscape, and also considers the impacts of the various geopolitical-ecological actors upon that landscape. As such, more-than-human geopolitical ecology can clearly situate the geopolitical influence of nonhuman actors within particular landscapes and ecologies.

Thus, efforts to bring nonhuman animals into explanations of the geopolitics of the environment, paves the way for more-than-human geopolitical ecology. As demonstrated by the above approaches from both political ecology and critical geopolitics, efforts to incorporate the political subjectivities of nonhuman animals into geopolitical explanations, is “much more than an additive exercise” (Sundberg, 2011: 332), as it produces unexpected and richer accounts of how geopolitical-ecological realities unfold.

### 2.2.2 (Geo)political matter

Whilst scholarship from political ecology and critical geopolitics that engages with (geo)political animals has a lot to offer an emergent more-than-human geopolitical ecology approach, most of these studies conceptualise the political agency of nonhumans solely in terms of living nonhuman animals. Indeed, Barua argues that “matter is largely absent from scholarship on the geographies of human-animal relations” (2014:1463). However, given my assertion that caviar as a substance has political potential, and is a geopolitical actor alongside sturgeon, there is therefore a need to bring ‘matter’ into my framework for more-than-human geopolitical ecology. As such, I draw upon other studies in political ecology and critical geopolitics which theorise the political agencies of material-things alongside nonhuman animals and human actors.

A focus on the political “properties, energies, and potentialities” (Sundberg, 2011: 318) of nonhuman objects and matter has been spearheaded in political ecology by Jane Bennett (2010) through her seminal work: ‘*Vibrant matter: a political ecology of things’*. ‘Matter’ is an overarching term that “can imply both living substances and nonliving materials, although strict divisions between the two are eschewed” (Barua, 2014: 1463). At essence Bennett emphasises the vitality of matter, and theorises the “active role of nonhuman materials in public life” (2010:2). She does this by stressing that whilst material-things are acted upon by humans, they also possess a power and independence from human forces – albeit “different types and degrees of power” (Bennett, 2010: 108). Through this power, material-things influence socio-political outcomes. As such, material-things are positioned as “vital players in the world” (ibid:3).

Bennett’s work has directly influenced Barua’s (2014) investigation into the role alcohol plays in shaping the material politics of human-elephant conflict in Assam, India. Barua (2014) describes the ‘volatile ecologies’ of human-elephant conflicts emerging from two distinct forms of alcohol consumption: the consumption of alcohol by humans when trying to guard their crops from elephants at night; and the consumption of alcohol by elephants raiding illicit distilleries. Through this empirical example, Barua demonstrates that alcohol “makes its way into political ecologies and its volatile choreographies trouble routine explanations of who or what generates and mediates conflict” (2014: 1472). This study points to the micropolitical properties of material-things, whilst situating their political effects within broader macropolitical structures and trajectories. This orientation to the intersections of the micropolitical materialities of things with the broader macropolitics of human-environment relations, is instructive for developing a more-than-human geopolitical ecology which is attuned to the geopolitical potentials of living and nonliving materials, across a multitude of scales.

Moreover, a select few of the previously aforementioned studies examining the more-than-human dimensions of political ecology, are useful foundations for engaging with material-things as significant actors in the geopolitics of the environment. For example, Sundberg argues that “those classified as nonhumans – whether living or inert – cannot be backdrops to (geo)political affairs but are integral to and constitutive of them” (2011: 332). As such, Sundberg draws attention to the “properties, energies, and potentialities” (ibid: 318) of inert nonhuman materials, objects, and environmental features within desert ecologies; and outlines how these desert materialities co-produce the politics of border enforcement and human and nonhuman migration. Furthermore, Banoub’s (2019) analysis is particularly relevant to my own empirical focus on sturgeon and caviar, as he moves from examining the political agencies of codfish as living beings, to assessing the political potentialities of dead saltfish commodities. Banoub describes how the material properties of dead salted cod– namely their high water and low fat content – shaped the global geographies of saltfish trade and ultimately the 1894 Newfoundland bank crash. Cod were rendered into semi-preserved saltfish through practices of salting and open-air drying, in an attempt to limit decomposition and extend the temporalities of the saltfish trade. Based upon this, Banoub argues that “cod, once killed and processed into saltfish, are neither inert nor passive. Saltfish is at once a ‘dead’ commodity, and a living microbial community” (Banoub, 2019: 9). This example is useful for thinking through the political agencies of caviar. Caviar appears on the one hand to be an inert, dead commodity; but is simultaneously a ‘lively commodity’ (Collard and Dempsey, 2013; Barua, 2016), due to the political potentials of its organic properties and material characteristics.

Finally, a key way in which geopolitical scholarship has engaged with materiality and the geopolitics of human-environment intersections, is by examining the materiality of borders, and specifically how nonhuman ‘nature’ and material-things co-produce border space. For example Rossiter examines the materiality of lemons in his account of the 'political ecology of borderspace'. He advocates for viewing "the lemon (or *any* object) and its materiality as a constitutent of bordering processes and the production of border space" (2011:111). Indeed, Rossiter describes how US and Canadian national security and border control practices have been shaped by concerns about the material capacities of lemons to carry disease such as citrus kanker, or harmful biological agents, which would impact US crops, economies, and national security. The fact that lemons are seen as “materially capable of being a vector for other unwanted bodies” (ibid: 117), shapes security actions upon nature in ways that fundamentally impact upon human mobilities. Rossiter outlines how a draconian ‘zero tolerance’ approach to lemons passing the border, resulted in a woman being permanently expelled from the NEXUS programme – a Canada/US initiative to facilitate pre-clearance at the border for frequent travellers – for failing to spot a misplaced lemon in her car. Importantly, Rossiter situates this extreme response to the misplaced lemon as part of the broader post-9/11 US/Canadian political-economy and security structures. This example is illuminating of the ways in which the material properties of everyday objects and organic things such as lemons, become unexpectedly embroiled in the extension of securitization and geopolitical processes. Arguably this study represents an example of more-than-human geopolitical ecology given its theoretical and empirical focus, and therefore justifies a need to include a consideration of the political impacts of material-things in my agenda for more-than-human geopolitical ecology.

In examining the nonhuman materiality of borders, Du Plessis (2018) moves away from studies theorising non-human effects upon borders which have been created by nation-states (Rossiter, 2011; Sundberg, 2011); and instead redirects attention towards “borders that are created by non-humans” (2018: 395). Du Plessis theorises the materialities of microbial borders, arguing that “pathogens engage in bordering practices that matter to human beings” (2018: 392). She demonstrates that some microbial borders are coterminous with nation-state borders. For example, the microbial border of Dengue fever between Mexico and the USA is determined by the “ecological political economy” (Du Plessis, 2018: 397) separating these countries, and where mosquitos and the dengue fever virus proliferates. However for the most part, microbial borders exhbit their own materialities. Variably examining the microbial borders of tubercolosis and the zika virus, Du Plessis outlines “how pathogens territorialize spaces by taking advantage of ecological factors favouring their proliferation” (2018: 393). This points to the relational politics of microbial borders: factors related to the natural and socio-economic environment coalesce to determine the materialities of microbes, as “distinct political actors” (ibid: 397). For example, Du Plessis positions London as the “tubercolosis capital of the West”, describing how tubercolosis “takes advantage of the inequality that persists in the British postcolonial state” (ibid), creating microbial borders around metropolitan centres that are often home to migrant communities. These microbial borders are manifestations of the material geopolitical-ecologies of disease, pointing to the ways that pathogens as political actors can ‘fractalize’ territorial sovereignty, by producing their own material borders and territories.

In sum, it is essential to engage with both the material properties of living and nonliving beings, and the materialities generated by such nonhuman actors, in order to produce nuanced engagements with more-than-human geopolitical ecologies. Both political ecology and critical geopolitics engage with the political potentials and material effects of material (and immaterial) things. Whilst a key focus across both sub-disciplines has been the more-than-human materiality of borders, Banoub (2019) demonstrates that material-things shape political configurations in broader ways that extend beyond borders, and include complex assemblages of human and nonhuman actors. To this extent, my approach for more-than-human geopolitical ecology builds upon the ways political ecology and critical geopolitics grapple with the political affordances of material-things.

## 2.3 Conclusion: More-than-human geopolitical ecology

In this chapter I have argued for the need to develop more-than-human geopolitical ecology as a theoretical framework. This theoretical framework builds upon approaches in the sub-disciplines of environmental geopolitics and geopolitical ecology. Environmental geopolitics is a strand of critical geopolitics that discursively deconstructs how “the environment is brought into narratives, practices, and physical realities of power and place” (O’Lear, 2018: 165). Geopolitical ecology integrates the strengths of critical geopolitics with those of political ecology, to theorise how large geopolitical institutions “emerge as key environmental actors and better understand how such institutions define, control, and manage nature” (Bigger and Neimark, 2017: 20). Arguably, geopolitical ecology is influenced by environmental geopolitics as a strand of scholarship in critical geopolitics; but in this chapter I demonstrate that there is scope for more sustained interaction between the two sub-disicplines. By bringing both of these sub-disciplines into dialogue with each other, I illustrate how the theoretical approaches they espouse can be synthesised in order to make sense of various aspects of the proliferating geopolitics of environmental change.

However, whilst the two sub-disciplines have commonalities and theoretical strengths that I borrow from; ultimately I argue that neither environmental geopolitics nor geopolitical ecology taken alone, or combined, can adequately account for the nuances of my empirical focus upon the implications of regulating (illegal) caviar trade in the EU. This is because the two sub-disciplines to date, have largely overlooked and considerably under-theorised the political role of nonhuman animals and material-things in actively shaping geopolitical-ecological configurations. An exception, is Mostafanezhad and Evrard's (2018) study into the geopolitical ecologies of tourism in Northern Thailand, in which the authors position the transboundary haze as a geopolitical actor. But for the most-part, emerging work in environmental geopolitics and geopolitical ecology displays a notable lack of engagement with more-than-human theories and methodologies. This sidelining of the political subjectivities of nonhumans is particularly stark, given the wider adoption of more-than-human theories in both political ecology and critical geopolitics – and arguably the discipline of human geography as a whole; and also because the study of the geopolitics of the environment is by definition *always* more-than-human.

To this extent, I propose a theoretical intervention that can explain the nuanced implications of caviar trade regulations in the EU; as well as guide future work on the more-than-human intersections of geopolitics and environmental change more broadly. This theoretical trajectory combines the foundational elements of environmental geopolitics and geopolitical ecology, with aspects of more-than-human scholarship in political ecology and critical geopolitics. In particular I engage with, and build upon, work that theorises the political subjectivities of nonhuman animals, and studies that conceptualise material-things as having vibrant, political energies and potentials. I draw upon more-than-human scholarship to emphasise multi-scalar geopolitical relationships between diverse human and nonhuman actors. This entails examining scales ranging from the molecular to the global, and assessing how humans and nonhumans alike, “behave and misbehave in ecologies that are explicitly political” (Margulies and Bersaglio, 2018: 104). In sum, more-than-human geopolitical ecology is a theoretical approach designed to foreground and analyse the role of diverse nonhuman actors in co-producing the geopolitics of environmental change. Importantly, this theoretical approach does not privilege nonhuman actors, but situates them within the unique assemblage of forces – both human and nonhuman – which shape geopolitical-ecological configurations.

Thus, my theoretical framework for more-than-human geopolitical ecology crystallises around the following five analytical concerns. First, I reiterate my ontological commitment to engaging with nonhumans such as sturgeon and caviar, as geopolitical actors with the capacity to influence geopolitical-ecological realities. The integration of more-than-human ontologies is built upon the second aspect of my theoretical framework, which centres around how ‘ecology’ is conceptualised in accounts of geopolitics of the environment. Drawing on approaches in geopolitical ecology, I understand ecology to refer to both how threats posed *to* nature, and *by* natural phenomenon, shape international relations; and also how geopolitical interventions have material implications for nature. Importantly, through this conceptualisation of ecology, I emphasise how nonhuman nature is not merely an object that is subjected to human forces, but that ecology/ecologies can respond to, and even disrupt geopolitical interventions. The third aspect of my theoretical framework emphasises the need to deconstruct the discourses which shape and solidify environmental features or phenomena as geopolitical issues. Using O’Lear’s (2018) conceptualisation of discourse as narrative, materiality, embodiment, and practice; I argue that it is necessary to pay attention to how nonhuman actors operate in ways that reinforce, disrupt, or outright challenge the discourses of environmental geopolitics. Following this, the fourth dimension of my theoretical framework asks in line with O’Lear (2018) how discourses of environmental geopolitics are stabilised using science, and/or concerns about risk and security. From a more-than-human perspective, this requires analysing how nonhuman actors are variably brought into, or marginalised by efforts to stabilise particular discourses. I ask how paying attention to nonhuman actors might open new avenues for discourse stabilisation, such as thinking about how nonhuman animals are increasingly brought under the remit of security; or alternatively, considering how nonhuman actors can unsettle efforts to stabilise discourse through science, risk, and security. Finally, the fifth aspect of my theoretical framework mobilises geopolitical ecology’s concern around assessing the inequalities that emerge from geopolitical interventions in nature. I assess how the discourses surrounding the geopolitics of environmental change produce unequal socio-economic and environmental impacts for both humans and nonhumans alike.

In terms of operationalising my theoretical framework for more-than-human geopolitical ecology, Massé and Margulies suggest that geopolitical ecology research offers methodological opportunities for “tracing the entwined flows of financing and political intent in producing environmental change” (2020: 13); and suggest one such method could be tracing discourse through ‘follow the policy’ methods. Indeed, I explain in the following chapter, how I conducted more-than-human geopolitical ecology research, by developing a follow-the-policy methodology. This method enables me to trace the myriad geopolitical-ecological impacts arising from the creation and transposition of caviar trade regulations within the European Union.

# Chapter 3: Methodology

## 3.0 Introduction

This chapter outlines how I conducted more-than-human geopolitical ecology research. My methodology is grounded in the qualitative research tradition, taking influence from approaches in critical social sciences and human geography in particular. I understand methodology to involve a consideration of not only the specific methods that are deployed in the research process; but also to entail paying careful attention to the personal reflections and experiences of the researcher, broader methodological debates, and the process of reasoning that informs how research questions are produced and how researchers go about attempting to answer them (Cloke *et al.*, 2004:5). In what follows, I outline my methodological trajectory, detailing the qualitative research methods I used and also reflecting on how the methodological decisions I made relate to and inform the theoretical framework of this thesis.

There exists no blueprint for how to *do* research that espouses a geopolitical ecology theoretical framework; and there is certainly no methodological blueprint for research that theoretically combines geopolitical ecology with more-than-human approaches. I therefore respond to the push in human geography to experiment methodologically (Dowling *et al*., 2017, 2018; Williams *et al.*, 2019), by developing my own methodology for doing more-than-human geopolitical ecology. The methodology that emerges is a non-linear, sometimes messy (Law, 2004), story of following in multiple forms. I set out to follow caviar by using a follow the thing methodology which has been applied to myriad commodities such as papaya and hot sauce (Cook, 2004; Cook & Harrison, 2007). However for reasons explained in the chapter, this methodology proved untenable. Ultimately though, my initial exploration into follow the thing methods paved the way for my eventual decision to follow the policy (Peck and Theodore, 2012; 2015). My methodology therefore explains how and why I came to follow the policies designed to regulate the caviar trade in the EU. In particular I explain how I adapted Wood's (2016) framework of following the people, materials, and meetings that constitute the process of policy circulation, to suit the specificities of my case.

Throughout this methodology chapter I am openly reflexive and cognisant of the challenges I faced in undertaking multi-method, multi-sited qualitative research, without a methodological blueprint to follow. The methods I employed were forced to undergo adaptation as unforeseen barriers prevented me from following policy, caviar, or sturgeon in a straightforward manner. Being reflexive is an integral aspect of rigorous qualitative research, and requires the researcher to give:

Careful consideration to precisely what it is that they are doing in their own projects: the conceptual, the practical, political and ethical implications arising for these projects, for themselves, for the people and places under study, and perhaps even for society more generally (Cloke *et al*., 2004:22).

To this extent, I reflect upon the ‘conceptual, practical, political and ethical challenges’ that I encountered when trying to develop an innovative methodology for doing more-than-human geopolitical-ecology research.

The chapter centres on my experience of data collection. Section 3.1 describes my vision for ‘follow the thing: caviar’ and explains why this methodology was untenable in practice, but how it paved the way for my adoption of follow the policy. In section 3.2 I explain what follow the policy is, and how I operationalised it in order to examine the geopolitical-ecological impacts of caviar trade policies in the EU. In particular, I describe how I achieved this methodology through following: people, sturgeon, materials, and events. I justify why the various qualitative methods were appropriate, by situating each of them in the broader methodological literature and reflecting on how I adapted these methods to fit the specificities of my research context. In section 3.3 I reflect on the power relations, positionality, and ethical considerations that I was confronted with during the research process. I describe how I dealt with these issues, and how attention to power, positionality, and ethics enriches my work. In section 3.4 I explain my analytical framework and the use of critical discourse analysis to interpret the results from my empirical data. I demonstrate how my analytical decisions were shaped by my own experiences in the field and also how the analysis aligns with my theoretical framework.

**Data Collection**

## 3.1. Follow the thing: Caviar

At the outset of data collection I intended to undertake a ‘follow the thing’ methodology (Cook, 2004; Cook and Harrison, 2007; Christophers, 2011; Lepawsky and Mather, 2011; Hulme, 2015) that would involve following caviar across the production network in the European Union. Follow the thing methodologies take ultimate inspiration from the scholarship of Marx, and more recently Appadurai (1986), Harvey (1990) and Marcus (1995). These methodologies seek to de-fetishize commodities, by bringing to light the “social and spatial pathways” (Christophers, 2011: 1069) of their production and circulation. The goal is to “reconnect consumers and producers” (Cook, 2004: 642), by revealing the hidden socio-spatial geographies of the commodities we use and consume.

My methodology for ‘Follow the thing: Caviar’ similarly sought to de-fetishize caviar as a commodity. By following caviar, my methodology would draw attention to the overlooked social, spatial, geopolitical, and ecological contexts of caviar’s production and circulation in the European Union. In particular, the aim was to reconnect consumers and producers by making legible the broader impact(s) of the caviar trade regulations upon both legal and illegal production and circulation of caviar in the EU. Thus, I set out to “trace backwards the commodity’s life-course” (Christophers, 2011: 1068) starting from caviar end-user markets in cities such as London and Brussels, and ending in the geographically dispersed source locations across the EU. However, practically operationalizing the methodology for ‘follow the thing: Caviar’ did not go to plan. In fact, I quickly realised that caviar is an “unfollowable thing” (Hulme, 2017).

Initially, I was able to easily locate caviar for sale in high-end restaurants and delicatessens; exclusive retail outlets such as Harrods; duty-free stores in airports; and online marketplaces such as eBay and Amazon. In theory tracing the commodity trajectories of caviar backwards should have been straightforward due to the universal caviar labelling system[[7]](#footnote-7) implemented as law in the EU - and in some cases it was. For example, the universal caviar label was the starting point that enabled me to trace the social and spatial life of a tin of caviar backwards from retailer, to wholesaler, to repackager, to producer. However for the most part, the following process was not straightforward. For example, I posed as an interested caviar buyer on eBay, and contacted online retailers to request details - and where possible photographs - of the CITES labels on the caviar tins. A small minority of online retailers replied with the information I requested, thereby enabling me to continue following the commodity. On the contrary, other retailers replied stating that their caviar had no label at all. Some merely reiterated the same information from their online posting, for example stating their caviar was ‘Farmed from China’, but providing no corresponding photograph of the label, or information on CITES codes. I even had an unexpected phone-call from one retailer who told me that they were able to source “the premium caviar”, and could ensure that the CITES labels were “sound”. Reading between the lines, I could only take this to mean wild – therefore illegal - caviar with falsified CITES labels. Without buying the tins of caviar and seeing the labels first-hand, I was unable to follow the caviar further. If I did purchase the caviar and it arrived with falsified CITES labels then I would likely follow the commodity in the wrong direction. Moreover, if I purchased caviar and it arrived with no labels then it would have been impossible to follow the commodity further, and more importantly I would have been engaging in illegal activity.

These experiences acted as a proverbial light-bulb moment for me. I realised I had reached a roadblock with the ‘Follow the thing: Caviar’ methodology. On the one hand, the methodology appeared to function well when following legal caviar commodities that were labelled according to the regulations. In these instances, I could demonstrably gain a sense of the impact of the caviar trade regulations on the socio-spatial geographies of legal caviar commodities. On the other hand, I realised that my methodology would not work in practice for illegal caviar commodities. This was problematic given that understanding dynamics of illegal caviar trade in the EU was integral to the thesis aims and research questions. Perhaps naively I anticipated that I might be able to locate and identify illicit caviar and then trace the commodity flows. In fact, my plan to follow flows of illegal caviar were fruitless and never got off the ground. I struggled to locate and identify illicit caviar precisely because the networks trading in illegal caviar products are highly organised, impenetrable, and adept at ensuring illegal caviar evades detection.

Based upon the hurdles that following illegal caviar presented me with, I decided to reassess my methodology. My experiences of attempting to follow both legal and illegal caviar pointed to the significance of the caviar labelling system. The labels on tins of caviar proved vital in enabling me to trace the commodity journey of legal product; but the lack of labels or fraudulent labels stymied my attempts to follow illegal caviar product. To this extent, the labelling system peaked my interest as a possible avenue to investigate further. I was curious about the inconsistencies in the labelling system, which appeared to allow illegal caviar to masquerade as legal product. As such, I decided to shift my attention more squarely towards the caviar trade policies. I decided to follow the caviar trade regulations in a similar vein to how I intended to follow the commodity. I therefore identified ‘follow the policy’ (Peck and Theodore, 2012, 2015) as an appropriate methodology to apply to this new analytical focus. Through following the caviar trade policies, I planned to ‘de-fetishize’ the regulations by illuminating the gaps and grey areas that enable illegal caviar trade to continue. Moreover, I intended to interrogate the overlooked social, spatial, geopolitical and ecological impacts created by the oversights and ambiguities in EU caviar trade regulations. Importantly, my methodology to follow and locate gaps in caviar trade policy makes space for examining the more-than-human impacts of the caviar trade policies in the European Union.

## 3.2 Operationalizing Follow the Policy

Peck & Theodore’s ‘follow the policy’ is directly inspired by follow the thing methods, in that the method involves “exploring the social lives of globalizing policy models”, (Peck & Theodore, 2012: 23) much like follow the thing methodologies involve explicating the social lives of commodities. Examining the social lives of globalizing policy models involves tracing how policies travel, translate, and evolve as they circulate across policy networks. It also involves paying attention to the “social and ideological contexts of the policy-making process, to the politics of policy knowledge production, or to the more indeterminate zones of policy implementation and practice” (Peck & Theodore, 2012:23). Arguably, I suggest that examining the social lives of policy should extend beyond just examining *how* policies travel, translate, evolve and are implemented; and should also involve examining the broader more-than-human implications of these policy circulations.

As such, the methodology I employ to follow the policy is not merely a descriptive exercise of charting policy mobilities across geographical space; but entails “tracing power, exploring how it is constituted, how equality and inequality are constructed in practice, and through the processes of policy making” (Cochrane and Ward, 2012: 9). Although the method is rooted in critical political economy and has typically been applied to fast-moving economic policies (Peck & Theodore, 2015), the imperative to deconstruct the underlying power dynamics of policymaking and circulation means that the method has the potential to align well with issues of concern in (geo)political ecology. To this extent, I applied the follow the policy methodology to EU environmental policymaking, in particular focusing on the unequal impacts of policies that regulate trade in caviar.

My methodology for follow the policy takes EU caviar trade regulations as the starting point and uses mixed qualitative methods to explore the social lives of these policies, by following their creation and implementation ‘laterally’ (Peck & Theodore, 2012) across different contexts in the European Union. My empirical case of EU environmental policy is qualitatively different to the types of economic policy studied by Peck & Theodore (2012, 2015). However the methodology can be productively applied to this case, due to the specific nature of policymaking in the EU. EU regulations are negotiated and produced centrally by the EU institutions, and then transposed into the national legislation of the Member States. This process of transposition creates potential for variability in the trajectories of policy as it circulates between EU Member States. Thus, in line with Peck & Theodore I employed a distended case study approach in my research design. This necessitates “methodological travel, along the paths carved by the policies themselves” (Peck & Theodore, 2012: 24); and results in visiting multiple locations. As such, my research is multi-sited, covering multiple EU Member States. Through this methodological travel my research connected “places of policy invention not only with spaces of circulation and centres of translation, but also with the prosaic netherworlds of policy implementation” (ibid). It is these netherworlds of policy implementation that reveal interesting geopolitical stories of failure, power, and contestation in the process of policy implementation in the EU.

To this extent, I started my main body of fieldwork[[8]](#footnote-8) in February 2018, in a site of policy invention: Brussels, Belgium. From here I studied-out in a multi-directional fashion: I followed the trajectories of caviar trade policy to “spaces of intensive exchange but also those of contingent connection, marginalization, and exclusion” (ibid: 28). I physically followed the policy across 6 Member States in the European Union: UK, Austria, Belgium, Netherlands, Romania and Poland. I conducted roughly 12 weeks of fieldwork, ranging from 3 days to 4 weeks in each country[[9]](#footnote-9). I was also able to virtually follow the policy related to caviar trade (thanks to the technological affordances of Skype) to non-EU states such as Switzerland, Ukraine and USA[[10]](#footnote-10).

It is important to note that the spatial geography that emerged from my follow the policy methodology is partial and not an exhaustive reflection of how caviar trade policy travels and is translated across the European Union. Through the process of policy following I also identified Bulgaria, Germany, and France as EU Member States in which I could follow the policy to. However access to people and events, and the time constraints of conducting PhD fieldwork were the factors that determined the final geography of my study, and ultimately prevented me from further extending my methodology to these countries.

At times, I found the geographically unscripted nature of this methodology difficult to manage, and sometimes frustrating. I recall following the policy to the Netherlands, where I conducted 10 interviews. However, many of these interviews turned out to be very generalised around wildlife crime and EU wildlife trade policy, rather than focused on caviar trade policy. When pushing interviewees towards questions on caviar policy, many told me that if I wanted to “talk caviar” I should travel elsewhere in the EU and interview other people. Following policy led me to the Netherlands, but at the time I worried that I should have been somewhere else. Peck & Theodore acknowledge that this feeling of needing to be elsewhere often runs through follow the policy research. However they note that practically “it is not always possible to ‘be there’, when in the study of global policy networks there is a constant imperative to also ‘be’ somewhere else” (2012: 25). As such, they suggest that due to the potentially boundless geographical nature of the methodology, methodological “saturation” is sometimes “practically unattainable” (ibid). Admittedly, I did not reach methodological saturation. I did however accept an end-point to the geographical scope of my research, as I recognised that I could not feasibly follow caviar trade policy everywhere in the EU.

When collecting data, I adapted Astrid Wood’s (2016) framework for tracing policy circulations. Wood (2016) proposes that one should follow the people, follow the materials, and follow the meetings, in order to chart the processes of policy circulation and learning. Alongside following the people, materials, and meetings, I also incorporated ‘follow the sturgeon’ into my methodology. In doing so, my methodology for policy following more squarely aligns with my more-than-human theoretical orientation. I now take people, sturgeon, materials, and meetings in turn, describing the combination of qualitative methods I used to follow them. I followed people, sturgeon, materials and meetings as a way of: identifying the gaps and grey areas in caviar trade policies; interrogating what the broader geopolitical-ecological implications of these policy idiosyncrasies have been; explicating the role of the nonhuman in shaping the impacts of the policies. Underlying this methodology is a consideration of how power is exercised and contested in the production, circulation, and implementation of caviar trade policies in the EU.

### 3.2.1 Follow the people

Following the people “involves face-to-face engagements, typically taking the form of interviews” (Wood, 2016: 395). Rather than shadowing people’s movements, follow the people as envisaged by Wood takes a grounded approach, asking interlocutors “to interpret and reflect on their own decisions and learning processes” (2016: 395) that connect them to the policy circulation process. To do this, I used semi-structured interviews as my primary method of data collection. Interviews provide a means of “understanding interpretations, experiences and spatialities of social life” (Dowling *et al.*, 2016: 680). I used interviews to explore how my interlocutors were variably connected to, and impacted by EU caviar trade policies.

I conducted 40 formal interviews, with a total of 51 interlocutors[[11]](#footnote-11) between December 2017 and May 2019. My main body of fieldwork commenced in February 2018 and ended in August 2018. The 40 interviews were geographically split as follows: Netherlands (10); Romania (9); Belgium (8); UK (6); USA (3); Austria (2); Switzerland (1); Ukraine (1). I loosely categorised the 51 interlocutors into six broad sectors based upon their occupations: Policy (11); NGO (10); Industry (9); Law Enforcement (9); Researchers (9); Judicial (3). These categorisations served a necessary methodological purpose by enabling me to simplify and quantifiably demarcate between the major occupational groupings either affecting and/or affected by caviar trade policy. By categorising individuals I could keep track of the evenness of coverage I achieved across the different key sectors. Ultimately my interviewees constitute a diverse sample, representing a continuum of views and professions linked to the caviar trade. My sample produced rich insights, but I do not claim that my findings are generalizable or that the views of the individuals interviewed are representative of the different sectors as a whole.

Furthermore, it is important to note that the above categories are abstractions, and do not fully reflect the diversity of the interlocutors. For some individuals it was difficult to fit them into a neatly bounded category, as they wore multiple ‘hats’. For example, I interviewed three individuals currently working as wildlife crime consultants, but coded them as either ‘policy’, ‘law enforcement’ or ‘NGO’ given that their ‘past’ identities were the capacity in which they were talking to me. Moreover, it is important to note that the individuals placed under the broad categories were heterogeneous in terms of occupation, class, gender, nationality, and other indices of difference. To counter the abstraction of the categories that the interviewees are placed under here, I contextualise all quotations used in the thesis with information related to the lived experience of the interlocutors. This includes occupation, gender, nationality, and month and country of the interview. However I am careful to ensure that no identifying information is provided.

I commenced the follow the people component of my policy following methodology by conducting an initial scoping exercise to identify key individuals and organisations directly linked to caviar trade policy. I combined online searches with the information I received from the programme and list of attendees for the 8th International Sturgeon Symposium (ISS8) held at the University of Life Sciences and Natural Resources (BOKU) in Vienna in September 2017[[12]](#footnote-12). By attending the symposium sessions at ISS8 and engaging in informal meetings and discussions at the conference, I began populating a list of prominent figures that I wished to formally interview. Through this scoping at ISS8 and three preliminary Skype and telephone interviews, I began to identify caviar trade policy hotspots or what Peck & Theodore (2012) might term sites of ‘intensive exchange’.

Brussels emerged as the key starting point for policy following. As such, I started to follow the people in Brussels and began face-to-face interviews there in February 2018. My criteria for identifying appropriate people to interview were as follows:

a) Policymakers and/or government representatives responsible for producing regional/national legislation related to caviar trade

b) Caviar industry representatives

c) NGO representatives working on sturgeon conservation and caviar trade issues

d) Enforcement officers responsible for enforcing the caviar trade regulations

e) Other individuals whose work had brought them into contact with caviar trade policy

I began by approaching individuals from the main target groups: policy, industry, NGOs and enforcement. From there, I employed a snowball sampling technique whereby my interviewees played an active role in identifying and/or putting me in touch with other individuals that may be of interest to my research. Through this snowball sampling method I followed policy laterally across the European Union, moving in a multi-directional manner starting in Belgium and spanning the Netherlands, Romania, UK, and Poland; as well as spanning different cities and regions within these countries.

Even when using a snowballing sampling method, arranging and conducting interviews is a time-consuming, labour intensive, and sometimes difficult process. For example, I encountered problems in arranging interviews in Romania, as I didn’t have an authoritative grasp of the institutionalised protocols of arranging interviews with government agencies and civil society organisations in the country. I made requests for interviews via email as standard, but on arriving in Romania most of these emails had gone unanswered. By chance after a few days in the country, a potential interviewee responded to my interview request via WhatsApp, and subsequently informed me that arranging meetings via phone at relatively short-notice, was the norm. From then on I adapted my approach and was more forthcoming in contacting interlocutors via WhatsApp or phone-call, although this was out of my comfort-zone. My lack of knowledge around the etiquette of organising interviews in Romania ultimately meant that I was unable to interview some key individuals that I had initially identified, as I only had limited time in the country. However the experience was instructive, as it demonstrated the need to be an adaptable researcher when in the field.

In terms of accessing individuals from my main target groups - policy, industry, enforcement, and NGOs – I generally found individuals in the caviar industry less receptive to engaging in interviews. As an outsider it was difficult to gain access to individuals in this sector. Unlike NGO representatives or policymakers whose emails and phone numbers are easily identifiable, most caviar companies only publish generic company email addresses or phone numbers online. I found that the emails I sent to these generic addresses mostly went unanswered. Furthermore, I came to understand that within the caviar industry there is a noticeable atmosphere of mistrust and hostility between some companies. On a few occasions I had to reassure individuals that I was not a ‘mole’ for a competitor company. Despite reassuring individuals that I was not looking to uncover illegal activity, and that all participants would be given anonymity, ultimately I think the critical nature of my research topic dissuaded many caviar industry representatives from taking part in the research. In the end, the caviar industry representatives that I interviewed (with one exception), I had either previously met in person or was directly put in touch with by another interviewee. The difficulty I had in accessing caviar industry representatives should not be seen as a limitation of the research. I found the process of attempting to locate and organise interviews with individuals in the caviar sector incredibly frustrating, but equally interesting as my experiences were revealing about the mysterious and guarded nature of the sector. Moreover, the setbacks I faced in trying to organise interviews with individuals from the caviar sector ultimately shaped my research trajectory, by driving me to further investigate the grey areas in caviar trade policy and specifically the legal-illegal interface in the caviar industry. In this respect, being unable to follow people in the caviar industry peaked my interest in investigating some of the hidden power dynamics in caviar policy circulation. Namely, how some industry actors seek to find ways to challenge or resist the mandates of the legislations.

Semi-structured interviews

When following the people I used semi-structured interviews. Semi-structured interviews are a commonly used qualitative method whereby the researcher prepares a list of pre-determined questions, which are used to guide – not direct- the course of the interview. In this regard, interviews “unfold in a conversational manner offering participants the chance to explore the issues they feel are important” (Longhurst, 2010: 103). My interview questions mainly covered three intersecting thematic areas: Legislation and policy; illegal caviar trade and organised crime; and legal caviar trade and aquaculture. The basic questions covered some of the following issues:

How has the interviewee interacted with caviar trade policy?

What are their opinions on the caviar trade policies?

Do they identify any problems with the policies? (If so, what are they?)

How has the interviewee been affected by the caviar trade policies?

What wider impacts have they witnessed as a result of the implementation of caviar trade regulations?

What is their understanding of illegal caviar trade dynamics? (How does it take place, why?)

How (if at all) do they think regulating the caviar trade in the European Union is geopolitical?

These questions were designed to give me an initial sense about the broad implications of the caviar trade policies; and to examine how power, politics, and resistance underwrites the circulation, implementation, and contravention of caviar trade policies in the European Union.

Given the heterogeneity between my target groups and the diversity in their experiences and understandings of caviar trade policy, I prepared interview guides that were specific to each of the target groups: policy, NGO, industry, law enforcement, researchers, judicial. Prior to each interview I dedicated time to researching the individuals and their organisations, and tailored the questions to their specific context. I also added questions informed by data gathered in previous interviews, and other data collected by following sturgeon, materials, and meetings. As such, my interview guides were living documents: I amended the questions in an iterative manner that reflected how my research progressed and the themes of interest that were emerging.

I made it clear to all of my interlocutors that I was not seeking to uncover information about specific examples of illegal activity during interviews. However, I did ask interviewees’ general questions about their opinions and experiences related to how regulatory frameworks have affected illegal caviar trade in the EU. Thus, my interviews skirted around the topic of illegality. As such, I needed to plan carefully about how to ask these questions. Nuno and St. John recognise that when conducting research into conservation issues that are illegal or sensitive, respondents may be “dishonest” in their answers, or “answer questions in a manner that will be viewed favourably by others” (2014:6). They note that the order of questioning should be carefully considered, and that social scientists generally err towards asking sensitive questions towards the end of the interview or questionnaire (ibid). Ultimately I could not control whether interlocutors were honest during interviews. But with this concern in mind, I designed my interviews to start with broad questions about the individuals’ background and their experiences or links to the caviar trade and caviar trade policy. I then moved towards increasingly specific questions about particular regulatory mechanisms and the impacts of them, and then moved to general questions about the links between caviar trade policy and illegal caviar trade. Given that my interview questions were not designed to elicit specific information about illegal activity, my interlocutors generally appeared comfortable discussing their views about the impacts of caviar trade policy on illegal caviar trade. I made it clear that interviews would be anonymised and that interviewees could: decline to answer any question; choose to withdraw their consent for the interview at any point; and could decide what parts, if any, of the interview were recorded. This information was explained in a ‘Participant Information Sheet’ (Appendix A) that I sent via email to participants in advance of the interview, as well as verbally reiterating the content of the information sheet at the start of every interview.

My interviews were conducted either in the workplace of the interviewees – which ranged from offices to sturgeon farms; or alternatively they took place in public locations such as restaurants and cafes. The interviews were conducted in English, except for one group interview with two Romanian interlocutors. This was an exceptional case, as after the interview had already commenced in English, one interviewee requested that the other interviewee act as translator – of my questions and her answers – for the rest of the interview. I agreed to this arrangement as the interviewee in question explained that she felt more comfortable expressing herself in Romanian. However I do acknowledge the potential limitations of this interview, given that I was unable to brief the stand-in translator, and I cannot be certain that his translation was completely accurate. That being said, I got a sense that the female participant was more forthcoming in her answers when given the opportunity to speak in Romanian, and to this extent I anticipate that the data I collected was richer than if the interview had been conducted solely in English. This situation demonstrates the reality that despite extensive planning, semi-structured interviews rarely go completely to plan in practice, and as an interviewer there is a need to be adaptable in unexpected situations.

I recorded and transcribed the interviews, subject to receiving prior informed consent from the interviewee(s). In some situations sections of interviews were not recorded at the request of the interviewee. In all cases, unless otherwise arranged, I shared the transcribed interview document with the interviewee for them to review and make any changes as they see fit. In the few situations where interviews were not recorded, I took handwritten notes throughout the interview. I reviewed these notes immediately after the interview and typed them up as more formal interview notes in place of a verbatim transcript. I acknowledge that there is some limitation to these notes as they have been shaped by my own partial recollection of what was significant in the moment of the interview. To overcome these potential limitations in my notes, I ensured interviewees had the opportunity to review and comment on the notes according to their own interpretation of the interview. It was not feasible to record all of the conversations that provided invaluable insights to my PhD findings, such as those taking place at conferences, or informal chats between interviews. I attempted to document these important exchanges in my research diary. Any references made in the thesis to conversations that were only recorded in my research diary are clearly situated as being filtered according to my own reflections and memory of the event.

A common critique of interviews is that they are “staged and scripted” (Wood, 2016:397) and constitute “performances or constructed narratives” (Dowling *et al.*, 2016: 683). This criticism is particularly levelled at interviews with “educated and articulate elites” (Wood, 2016: 397) who made up a significant proportion of my interlocutors. Despite these misgivings about interviews, following the people through face-to-face engagements was the most effective way for me to gain insights into the impacts of caviar trade policy across the EU. The interviews produced rich and multifaceted data that directly shaped the development of my methodology by opening up multiple avenues for onward policy following. Indeed, just because interviews can seem staged or performance-like, does not automatically mean the data collected is of an inferior quality or fundamentally not ‘true’. Face-to-face engagements offer much more than just what is ‘said’: often what is unsaid, as well as the body language and atmosphere of the interview can be incredibly revealing as sources of data. Thus, critically reflecting upon the constructed nature of interviews is part of the data collection process itself.

Moreover, Dowling *et al*.(2016) recognise that whilst qualitative researchers continue to rely on interviews, they often do so in ‘enriched form’. Arguably I enrich my interviews by pursuing “an expansion of forms of collecting information to supplement the interview – social media, video, diaries, following people and things – in parallel with deepening critical reflection” (Dowling *et al.,* 2016: 684). By enriching the interview through critical reflection and following sturgeon, materials and meetings, I add greater nuance to the data collected solely by following people.

### 3.2.2 Follow the sturgeon

The caviar trade regulations include mandates on the catch and trade in wild sturgeon. Thus, sturgeon are directly impacted by the caviar trade regulations. Initially I intended to focus narrowly on the impacts of the caviar trade regulations upon dynamics of *caviar* trade in the European Union. However my interviews increasingly pointed to the impossibility of disentangling caviar from sturgeon. Further, my interlocutors often framed the impacts of caviar trade policy in terms of the impacts on both captive and wild sturgeon; and also in the ways sturgeon disrupted or complicated the workings of caviar trade policy through their natural behaviours. So in order to analyse these more-than-human implications of caviar trade policy in the EU, I decided to enrich my interviews by also following sturgeon.

I used participant observation methods to follow captive sturgeon. I conducted 3 days of participant observation in total, at 3 sturgeon aquaculture facilities: one in the UK, one in Romania, and one in Austria. The facility in Austria was a research facility that rears sturgeon for the purpose of ex-situ conservation and restocking initiatives. The facilities in the UK and Romania are commercial sturgeon aquaculture facilities, farming sturgeon to produce caviar and/or to breed sturgeon to sell to other enterprises. During my days of more-than-human participant observation, I followed sturgeon primarily by shadowing the facility staff, and actively taking part in the everyday activities related to sturgeon rearing and caviar production. This included: handling and feeding sturgeon; recording information on the temperature, pH, and flow of water in the tanks; observing ultrasounds of sturgeon; and conducting routine ‘security’ checks of the facilities. I also spent time merely watching sturgeon of different species and at different life stages, to come to appreciate the variations in physiology and behaviours. I came to realise how the behaviours and activity of sturgeon were mediated not only by biological factors, but also by environmental conditions related to pool size and density, water temperature, lighting, and feed, amongst other factors.

Through these everyday participatory tasks, I gained a richer and deeper understanding of sturgeon as a subject of research. The experiences also gave me a visceral and personalised insight into the ways in which caviar trade policies have permeated and influence the everyday temporalities, infrastructures, and practices of sturgeon farming and caviar production; as well as highlighting how sturgeon shape these temporalities, infrastructures, and practices. This was an experimental foray into more-than-human methods, and I documented my experience of participant observation through a combination of field-notes detailing informal conversations, personal reflections, and photographs and videos. My field-notes and observations reflected on how the caviar trade policies were actualised in the everyday practices and rhythms of these facilities.

My participant observation methods took inspiration from more-than-human geographers who enlist a variety of embodied ethnographic practices such as moving, talking, doing, showing and walking (Pitt, 2015; Dowling *et al*., 2017). They use these methods as a way of elucidating the active role of nonhumans in co-constituting socio-spatial configurations alongside human actors. The practices I engaged in during my participant observation activities enabled me to see how the caviar trade regulations intersect with the liveliness and materiality of captive sturgeon, with implications for the operations of sturgeon aquaculture facilities. For example when observing sturgeon undergoing ultrasounds to determine whether they were carrying caviar, the facility staff explained their frustrations and difficulties in estimating the caviar output from their sturgeon. They stated that since rearing sturgeon, the caviar output had been highly variable and not what they’d expected based upon their calculations. This brought them to the conclusion that captive sturgeon are seemingly unable to produce quantities of caviar comparable to those taken from wild sturgeon when wild harvest was legal. This anecdote demonstrates how observing and following sturgeon revealed how captive sturgeon exert an active – sometimes unexplainable- force on the production of caviar. It also pointed to the changing human-nonhuman relations brought about by caviar trade policies, whereby humans and sturgeon are brought into closer proximity with unexpected outcomes.

Although not possible to follow sturgeon in the same manner as following people, I was able to follow the impacts of caviar trade policy in this instance via physical ‘encounters’ with captive sturgeon. Geographers are increasingly deploying methodologies that are attuned to more-than-human encounters (Johnson, 2015; Barua, 2016, 2017; Margulies and Karanth, 2018), in order “to account for how lively beings and even non-living things exert an active force on the unfolding of events” (Johnson, 2015: 303). In this sense, through my encounters with sturgeon I was able to witness how sturgeon exert a force on the unfolding of events such as the ultrasound and ultimately caviar yields. The informal discussion that followed this event linked the lower caviar yields with policy changes, thus confirming Johnson’s suggestion that an encounter is not a singular event, but that it “erupts within and passes through a geopolitical terrain” (Johnson, 2015: 310). Building upon this further, I demonstrate in this thesis how following sturgeon through more-than-human participatory encounters, situates the fish as an actor in the wider geopolitical-ecologies of the caviar trade regulations. In particular in chapter six, I draw upon my experiences of following captive sturgeon to explain how captive sturgeon shape, and are impacted by, the increasing securitization of caviar production.

### 3.2.3 Follow the materials

Wood (2016) points to the need to follow materials such as policy documents, websites, brochures and films in order to understand the process of policy circulation and learning. In line with this, I analysed 25 textual materials that were of direct relevance to understanding the impact of the caviar trade regulations in the European Union. These texts were broken down as follows: 5 policy documents detailing official legislation; 1 European Commission report; 1 European Commission press release; 7 NGO reports; 3 sturgeon conservation action plans; 2 reports on meeting proceedings; and 6 briefing reports detailing wildlife seizures in the EU (further details of the textual materials are included in Appendix B).

In following the materials I began by analysing the official CITES Resolution Conf. 12.7 that outlines the rules for global trade in sturgeon and caviar, and then analysed how this resolution had been codified in the EU Wildlife Trade Regulations (EUWTR). From here the choice of textual materials that I analysed were determined by the materials that interlocutors made reference to in interviews, and also through the online searches that I conducted on a regular basis. Wood acknowledges that “the task of tracing policy movement through materials involves significant sifting” (2016: 399), and I personally sifted through hundreds of other textual materials including newspaper articles, blogs, policy briefs, websites, and press releases in order to further develop and corroborate my understanding about the process by which caviar trade policy has circulated in the EU. I chose these 25 documents as they directly deal with EU caviar trade policy, and in most instances represented the primary document that other reports and blogs made reference to. Moreover, the textual materials I followed span the period 1997 to 2019. This is important because sturgeon were first listed on CITES in 1998, and so the cross-section of textual materials that I follow trace the entirety of the period in which extensive changes have been made to caviar trade policy in the European Union.

My methodology for following materials to understand policy circulation diverged from Wood’s (2016) due to the difference in the type of policy we were following, and the concomitant difference in the type of materials we followed. For Wood (2016) the materials she followed were “technologies of seduction”: materials such as brochures designed to encourage policy adoption. Whereas the materials I followed in order to understand the dynamics of caviar trade policy circulation, were anything but “technologies of seduction”. Instead many of the materials, such as NGO reports and conservation action plans, pointed either explicitly or implicitly to flaws in the EU policy frameworks, or places where caviar trade policy was not working or behind adhered to. To this extent, my aim in following the textual materials was to consider how the unequal implications of the policy circulation process are made visible through these texts. In particular I focused on analysing how the texts present – either directly or indirectly - the failures, idiosyncrasies and inconsistences of the caviar trade policies. Importantly I also examined the intersections and frictions between these texts and my interview transcripts.

### 3.2.4 Follow the meetings

The final aspect of my methodology for policy following, was to follow the meetings where policy related to the caviar trade was discussed and debated. Over the course of my fieldwork I followed the trajectories of caviar trade policy at three meetings: The 8th International Symposium on Sturgeon (ISS8) held in Vienna from 10-15th September 2017; The 26th Seafood Expo global trade event held in Brussels from 24th – 26th April 2018; and the Aller Aqua 9th International Sturgeon Conference held in Warsaw on 28th November 2018. Each of these meetings was very different in scale and focus, but they all engaged with issues related to caviar trade policy and its impacts in the European Union. At the two sturgeon conferences, policy related to caviar trade and sturgeon conservation was front and centre of many of the conference presentations and sessions. At ISS8 there was an afternoon discussion forum entitled ‘production and marketing of caviar and sturgeon products – current status and future’, and on the closing day of the conference the morning session was a dedicated ‘Policy Forum’, including representatives of DG Environment of the European Commission and the International Commission for the Protection of the Danube River (ICPDR). At the Aller Aqua 9th International sturgeon conference there were similar presentation themes, focused on: ‘caviar production’, ‘improved traceability of caviar to fight illegal trade’, and ‘caviar consumption and modern consumers’. All of these presentations directly or indirectly dealt with the impacts of caviar trade policies and their enactment in the European Union.

The Seafood Expo global is a notably different type of meeting, as it is primarily a trade event rather than a conference. The organisers describe the Seafood Expo as “the global place where the seafood industry meets”[[13]](#footnote-13), with over 29,000 attendees and 2000+ exhibiting companies. The event provided me with an opportunity to engage with seafood industry representatives and witness caviar trade policy in action. Moreover, the European Commission convened an exhibition space at the conference, and hosted a number of open events and talks dealing with issues of EU fisheries and trade policy broadly. For example former European Commissioner for Environment (DG ENV) and Maritime Affairs and Fisheries (DG MARE), Karmenu Vella, hosted two events entitled ‘Food from our oceans, a look into the future’, and ‘the social dimension of fisheries’. Throughout the duration of the Seafood Expo a team of experts from several Directorate-Generals in the Commission manned the European Commission stand. These experts ran daily information sessions on issues that were pertinent to my research, including: latest developments in EU trade policies regarding fisheries; EU consumer habits regarding fishery and aquaculture products; Controls; and Aquaculture.

At each of these meetings I deployed ethnographic observation methods. I attended the conference sessions and talks held at the three meetings, taking notes on the significant discussion points that related to the geopolitical-ecological impacts of caviar trade policy in the EU. I also engaged in informal discussions with industry representatives, policymakers, NGO representatives, and researchers at all three events. I made observational field-notes on the exhibitions and the physical arrangement of Seafood Expo global, as well as paying particular attention to how caviar was displayed and presented by caviar companies at the event (See Image 0.1). Wood suggests that conferences and meetings are “critical moments in which people, materials and learning intersect” (2016:399) to influence the trajectories of policy circulation. As such, these meetings can be viewed as critical moments for tracing the power of policy circulation and the unequal impacts of policymaking. To this extent, I paid attention to whose voices were prioritised in these meetings, what topics areas were prioritised or side-lined, and critically examined the nature of the materials that were being showcased and circulated. Following meetings therefore provided a final method to enrich my interviews and overall policy following methodology, as it enabled me to access microcosms where the pressing policy issues related to caviar and sturgeon were presented, debated, and contested by diverse stakeholders gathered together for a short period of time.

## 3.3 Power, Positionality and Ethics

Fundamental to the follow the policy methodology that I develop is the drive to deconstruct the politics of policy circulation, and in particular to examine “how equality and inequality are constructed… through the processes of policy making” (Cochrane & Ward, 2012: 9). Attention to power relations is foundational to both the theoretical and methodological orientation of this thesis. Moreover, I recognise that politics and power dynamics are inherent to my qualitative research practices, and have a significant influence upon that data that I produced. Thus I argue in line with Cloke *et al*.. that “the practices of research are themselves highly politicized” (2004: 367). I recognise that the social interactions between my interlocutors and myself as researcher, produced data that is politically imbued. To this extent, I now examine the power dynamics and micro-politics inherent to my research, by explaining how I dealt with issues of positionality and ethics in a reflexive manner.

Cloke *et al*. (2004) emphasise the need to examine the role of our ‘personal politics’ in shaping the outcome of our research. My positionality and personal attributes undeniably shaped the data that I collected, the narratives that emerged, and the stories that I choose to tell in the thesis. Research is an embodied process, and for me it provides an opportunity to produce research that aligns with my ethical and political beliefs. For example, a strong part of my identity is a commitment to vegetarianism and animal welfare. This personal politics and ethical orientation is reflected in chapter six, in the way I choose to highlight the ethical paradoxes of ‘sustainable’ sturgeon farming and caviar production. The purpose of this is to draw attention to the complex human-nonhuman power geometries that constitute ‘sustainable’ sturgeon farming; but undeniably this demonstrates how my personal politics influenced the research narrative.

Secondly, my positionality influenced how my interlocutors related to and interacted with me. “What people tell you, what they reveal and what they let you know are conditioned by how they see you and how they respond to you” (Cloke *et al.*, 2004: 365). In practice I noted how my positionality was not static, but in flux throughout the fieldwork process. As a young, white, well-educated British woman, from a prestigious Politics department in an esteemed UK Higher Education institution, I felt at times both acutely powerless and powerful, during research interactions. In one situation, an interviewee went to great lengths to tell me about their research accolades, and to make it clear to me that I was not an ‘expert’, and was ultimately at the mercy of the information they may or may not wish to provide me with. This served to establish very unequal power dynamics in the interview: it became completely one-sided and controlled by the individual in question, and clear that I was expected to be subservient. I found this interview particularly stressful and uncomfortable. On the other hand, during other interviews I perceived that some interviewees saw a reversal of power relations – viewing me as holding overriding ‘power’. In one instance for example, an interviewee asked me to provide support to her in getting her concerns raised at the highest political level in the European Commission – something that is way beyond my actual power.

For the most-part I do not think that my positionality constrained the data that I was able to collect. In fact, I believe that my identity as a relatively young, and eager researcher was enabling: it meant that many interviewees were particularly open and patient with me and my numerous requests for them to re-explain complex issues related to caviar trade policy. Overall, I tried to practice a reflexive approach to positionality. I cannot change who I am, or how my identity influenced the outcome of research; but I can critically comment on the extent of the impact that my positionality may have had on my data and the way I present it. Ultimately though, the weight of significance given to the influence of my personal identity on the outcome of research interactions should not be overstated, as “there is a growing awareness that such positionality, however much disclosed, can never fully express the complexities underpinning a research relationship” (Gold, 2002: 223).

A final way in which I consider the power politics of my PhD research is through questions surrounding the ethics of research. Ethical considerations include making decisions about how we conduct research in ways that are ‘good’ or ‘right’. My ethical decisions are closely intertwined with my positionality, and reflected in some of the decisions I made around how to relate to, and represent the stories of the nonhuman subjects I encountered in my research. But my ethical decisions also extend to my interactions with my human interlocutors. My personal approach to doing good and ethical research included: gaining informed consent from interlocutors; ensuring privacy and confidentiality; being respectful of others’ views; protecting interviewees from harms associated with the research; storing interview data on an encrypted hard-drive; and ensuring the ways I make use of and depict the data provided by interviewees is valid and accurate. My approach to research ethics was outlined in a report that was submitted to, commented on, and finally approved following amendments, by the ethics board in the department of Politics and International Relations at the University of Sheffield.

## 3.4 Analytical Framework: Critical Discourse Analysis

In outlining their methodology for follow the policy, Peck & Theodore state that “discourse analyses have indispensable roles to play in the deconstruction of traveling policy technologies and texts, and the lineages and networks with which they are associated” (2012: 23-24). Thus, to analyse the data I collected by following caviar trade policies in the European Union, I employed critical discourse analysis as my analytical framework. My approach to critical discourse analysis is modelled on the approach outlined by Fairclough (1989, 2013). Critical discourse analysis as envisaged by Fairclough, provides a framework for me to analyse how power and political ideologies influence the discourses that exist to describe the impacts of caviar trade policies in the EU.

Critical discourse analysis “combines critique of discourse with explanation of how the discourse figures within and contributes to existing social reality” (Fairclough, 2014:4); and does so as a foundation for action to change the existing social reality. Fairclough stresses that the defining feature of critical discourse analysis in comparison to other forms of critical analyses is that it offers “not just a critique of discourse”, but an *explanation* for how the discourse relates to, and contributes to, other elements of existing social reality (Fairclough, 2014: 4-5). These elements include ‘social objects’ such as physical objects, places, institutions, events and people; and ‘social elements’ such as “power relations, ideologies, economic and political strategies and policies” (Fairclough, 2014:4). Critical discourse analysis entails a three-stage approach involving normative critique, explanation and action. However, Fairclough recognises that whilst proponents of critical discourse analysis advocate for social change through action, in practice there may be a gap between analytical critique and action. This is because “CDA can directly inform action to change social life *only* through dialogue with social actors who are in a position to take such action” (Fairclough, 2014: 11 emphasis added).

In this regard, I analysed the multiple discourses at work in the data I collected on the circulation of caviar trade policies in the EU. This included analysing the discourses in the textual materials that I followed, but also analysing the discourses embedded within my interview transcripts. Through my analysis of discourses, I explain in the empirical chapters of the thesis how the contrasting discourses focusing on the impact(s) of caviar trade policies in the EU are intrinsically connected to wider social objects and elements identified by Fairclough (2014), such as specific places, institutions, ideologies, and political strategies. I interpret, evaluate, and critique the discourses “specifically in terms of the contradictions between what is claimed and expected to be and what actually is”; and I explain the discourses in terms of “how such contradictions are caused by and are a part of…the wider social reality which they exist within” (Fairclough, 2014:7). In my case, the contradictions in discourse lie in how the impacts of the caviar trade regulations are presented by Western European policymakers and enforcement officials, versus the reality on the ground in sturgeon range states. Moreover, the regulations have had unexpected geopolitical-ecological consequences caused by the gaps in legislation, which are overlooked by many of the dominant discourses and deserve critical interrogation.

I used the data analysis software NVivo to operationalize this analytical framework and to analyse the discourses in my data in a systematic manner. I uploaded all of my data to NVivo and began analysing the data by developing a coding framework. The codes or ‘nodes’ that I created in this framework were a mixture of analytical and descriptive codes. In the first instance I created analytical codes that referred to the different discourses about the impacts of caviar trade regulations that were present in my data. I created multiple codes to describe the contrasting ways in which caviar trade policies were discussed, and how the impacts of these policies were framed. My descriptive codes broke the analytical codes down into further themes, and began to provide some of the explanation that critical discourse analysis requires. I began this explanatory component by beginning to identify how the discourses were variably linked to ‘social objects’ and ‘social elements’ that serve to give certain discourses longevity and power over others. After commencing with my initial coding framework, my approach to coding was iterative and reflexive. I continually amended the coding framework through repeated rounds of coding and to reflect the increasing level of abstraction that came from sustained and detailed analysis of the data.

## 3.5 Conclusion

In summary, this chapter has outlined my methodological approach to conducting more-than-human geopolitical ecology research. I explain my methodological trajectory in a self-reflexive and honest manner, which outlines the methodological decisions I made and how they have been informed by the qualitative research strategies of others. I focus on deconstructing the conceptual, practical, political, and ethical challenges (Cloke *et al.*, 2004) that were part of my research process. In particular I present follow the policy as my over-arching methodological framework. I explain how I followed caviar trade policy by following people, sturgeon, materials, and meetings, and I discuss the methods that I employed for each of these practices of ‘following’. I demonstrate how the process of data collection contributed to the aim of de-fetishizing the policies, and exploring the geopolitical-ecological implications of caviar trade regulations in the EU. Importantly, this chapter has highlighted how concerns about power and inequality permeate the research design, choice of methods, and choice of analytical framework for the thesis. My methodology begins to open up space for considering how caviar trade regulations in the European Union have had uneven impacts on both human and nonhuman actors. Ensuring that my methodology was attuned to power dynamics was important in producing nuanced empirical analyses, which I begin in the following chapter. Chapter four introduces the EU caviar trade regulations and unpacks the discourse of ‘success’ that surrounds these regulatory frameworks.

# Chapter 4: Declining seizures and the hidden impacts of EU caviar trade regulations

## 4.0 Introduction

This chapter begins to outline and deconstruct the variegated impacts of caviar trade regulations in the European Union. In particular, the chapter interrogates the relationship between the implementation of regulatory frameworks and seizures of illegal caviar in the EU. I introduce the hegemonic policy narratives told about the impact of regulatory frameworks on seizures of caviar, and by extension, dynamics of illegal caviar trade in the European Union. I argue that some Western European policymakers and enforcement officials deploy seizure data to frame the regulation of the caviar trade in the EU as a ‘success’ story. In doing so, these actors - wittingly or unwittingly – overlook the unequal political-ecological implications of caviar trade regulations in the EU. This chapter therefore unpacks the caviar seizure data and problematizes the related ‘success’ narratives, by pointing first to the flaws inherent to these data; and second, to the hidden more-than-human inequalities that caviar trade regulations have entrenched in the European Union.

The listing of all 27 species of sturgeon and paddlefish on the CITES appendices[[14]](#footnote-14) in 1998 set the wheels in motion for the creation and implementation of a series of legislative mechanisms designed to: halt unsustainable over-exploitation of sturgeon in the wild; make legal caviar trade more sustainable and traceable; and crackdown on soaring levels of poaching and trafficking in caviar. The transposition of CITES regulations into EU law has had a major impact upon levels of illegal caviar trade within the European Union. In 2000, 4325kg of caviar was seized in the EU (Engler & Knapp, 2008:29). However, by 2016 reported seizures of caviar had declined to 60kg (Harris & Shiraishi, 2018: 9). Some actors in policy and enforcement spheres have presented the declining seizures as indicative of the ‘success’ of caviar trade regulations in the EU, thereby consolidating the “widespread belief that the caviar trade is under control”[[15]](#footnote-15). However, a 2017 multi-agency report[[16]](#footnote-16) on wildlife crime in the Danube-Carpathian region of Europe[[17]](#footnote-17) declared that despite a “multitude of legal instruments”, “illegal fishing and trade has reached alarming proportions and become the main threat to the survival of the Danube sturgeon” (Schlingeman *et al*., 2017:10).

This chapter examines this apparent contradiction between the dominant narratives promulgated by Western European policymakers and enforcement officials, versus those espoused by NGOs and actors working on the ground in EU sturgeon range states. In scrutinizing these contradictory narratives, I demonstrate that the seizure data deployed to present and sustain a particular narrative of policy success, is flawed and incomplete. I therefore question the utility of foregrounding these data to guide on-going EU policy priorities and enforcement strategies.

I then develop the main argument of the chapter: that the EU caviar trade regulations have had nuanced political-ecological effects that span beyond declining seizures of contraband caviar. Specifically, I argue that the regulatory frameworks have entrenched inequalities in the EU and even catalysed sturgeon poaching in some instances. However, the hegemonic policy narratives fixating solely on declining caviar seizures overlook these broader implications of the caviar trade regulations. This chapter therefore contributes to the main argument of the thesis, by demonstrating that regulations designed to prevent illegal caviar trade have not completely prevented illegal caviar trade in the EU, and have had other significant unintended impacts. Indeed, due to a number of oversights in the regulatory frameworks (such as the lack of provision for sturgeon fishing communities impacted by the establishment of zero export quotas and fishing bans), the economic insecurity for already marginalised groups has been heightened, and prompted participation in sturgeon crimes.

This argument aligns with my theoretical framework for more-than-human geopolitical ecology in a number of ways. First, in line with O’Lear (2018) I focus my analysis on deconstructing the powerful policy discourses that cast a narrow and partial view on the geopolitical-ecological implications of caviar trade regulations in the EU. I demonstrate how seizure data is deployed as a pseudo-‘scientific’ fact in order to stabilise these narratives, whilst simultaneously marginalising alternative narratives and voices. Building upon this, my discussion develops a further key dimension of more-than-human geopolitical ecology, by theorising the unequal impacts of the regulatory frameworks on both human and nonhuman actors. I make the case that the regulatory frameworks have benefitted certain individuals and groups such as the caviar industry, at the expense of less powerful groups including sturgeon-fishing communities. Moreover, I show how the regulations and concomitant policy narratives have side-lined wild sturgeon and impeded conservation interventions in the EU.

The chapter is structured as follows. Section 4.1 outlines the regulatory frameworks in detail: providing the context for the creation of the regulations; explaining what the regulations are; identifying some of the inconsistencies in the regulations; and describing their implementation in the European Union. In section 4.2 I examine how some actors have framed the impacts of the EU caviar trade regulations as a ‘success’ exemplified by declining seizures of contraband caviar. I critically analyse these seizure data, and highlight the discrepancies and absences inbuilt in these data. Section 4.3 develops the argument that to assess the impact of EU caviar trade policies, it is imperative to look not only at levels of seizures but also at the overlooked political-ecological implications of the regulations. In particular, I argue that attention should be paid to the impact of the regulations upon sturgeon fishing communities and wild sturgeon populations; dimensions which are not accounted for - but add necessary nuance – to the narratives that deploy seizure data to tell a ‘success’ story about the impact of EU caviar trade regulations.

## 4.1 Regulating the caviar trade in the European Union

In order to analyse the variegated impacts of EU caviar trade regulations, it is firstly imperative to situate the regulations in their broader context. This section outlines why and how the caviar trade became highly regulated in the European Union. In describing the major mechanisms of the regulatory frameworks I begin to demonstrate how the global caviar industry has changed since the listing of sturgeon on CITES. I also start to identify gaps and grey areas in caviar trade regulations. Deconstructing the regulations and highlighting their inconsistencies is an important foundation for the arguments made in this chapter and the following chapters. I argue that the regulations have impacts beyond declining seizures of caviar in the EU. Some of these overlooked impacts are a direct result of gaps and grey areas in the regulations. So, it is necessary to first reflect upon the context and specificities of regulating caviar trade in the EU.

### 4.1.1 Background to the CITES listing of sturgeon

In April 1998, following decisions made at the 10th CITES Conference of the Parties (CoP10) in Harare, Zimbabwe in June 1997, all 27 species of sturgeon and paddlefish were listed on the CITES appendices. Prior to this, there had been no universal control mechanisms to regulate the international trade in sturgeon and caviar. Although strict fisheries regulations previously existed in the Caspian Sea - where 90% of the world’s caviar historically originated (Goodman, 2001) – these fisheries controls were eradicated after the collapse of the Soviet Union in 1991. By the mid 1990s it was becoming increasingly apparent that international trade control mechanisms were urgently required. Sturgeon stocks were plummeting in the wild, whilst imports of caviar into Western European states such as Germany showed a “remarkable increase as a result of the intensive fishing operations” taking place in an unregulated manner amongst the former Soviet states bordering the Caspian Sea (Birstein *et al*. 1997: 4).

An IUCN[[18]](#footnote-18) workshop on ‘sturgeon stocks and caviar trade’ held in Bonn, Germany in October 1995 concluded that over-exploitation of sturgeon and poaching for caviar, were the main factors contributing to sturgeon decline (see Birstein *et al*. 1997). Catalysed by the expert conclusions from this workshop, at the first World Conservation Congress held in Montreal, Canada in 1996, members of IUCN passed a resolution that urged parties to CITES to commence regulation of trade in sturgeon products by including all species of sturgeon and paddlefish in Appendix II of the Convention. Subsequently, the issue of the conservation of sturgeon was put forward as a proposal to be considered at the 13th meeting of the CITES Animal Committee in Pruhonice, Czech Republic in 1996. At this meeting, it was decided that the proposal should be put forward for adoption at the CITES CoP10 in 1997.

The decision to include all 27 species of sturgeon and paddlefish on the CITES Appendices meant that from 1st April 1998 all international trade in live specimens of sturgeon, as well as derivatives including caviar, meat, leather, fertilised eggs and cartilage, were subject to international regulation. Most sturgeon and paddlefish are listed in CITES Appendix II, which determines that international commercial trade in these species is permitted under certain conditions whereby CITES import and export permits for international trade have been granted by the relevant CITES authorities. The exceptions to this are the Shortnose sturgeon (*A.brevirostrum*) and the Atlantic sturgeon (*A.Sturio*)[[19]](#footnote-19) which have even stricter trade regulations: the listing of these species on Appendix I means that commercial international trade is prohibited.

Adding sturgeon to the CITES Appendices proved to be a momentous decision and task. The listing set the wheels in motion for further regulatory changes that have been implemented since 1998, and have fundamentally transformed the global dynamics of caviar trade. These regulations (explained in the following section) make detailed provisions for how, and under what conditions, international trade in sturgeon and caviar can take place. However, the creation, implementation and amendment of these regulations has not been straightforward and is still ongoing over two decades since the initial CITES listing of sturgeon. Indeed, ex-chief of enforcement for CITES, John M.Sellar reflected during his introductory address at a 2006 European Commission enforcement workshop on caviar trade, how “it took some time before the CITES community fully appreciated just what an awesome task was before us” and that the listing presented “a massive challenge, one that we have still fully to come to grips with” (Sellar quoted in Knapp *et al.*, 2006: 22)

Indeed, the international community is still getting to grips with the ‘awesome task’ of regulating caviar trade. This task is further complicated by the gaps and grey areas in regulatory frameworks that enable illegal caviar trade to continue. It has long been recognised that there are discrepancies in the regulatory frameworks. For example, at the aforementioned 2006 European Commission enforcement meeting on caviar trade, there was a workshop focused specifically on legislative gaps and weaknesses. However, what is novel about my analysis is the focus on how legislative holes and ambiguities have produced unexpected challenges for the international policy and enforcement community to respond to. This chapter and the following chapter couch these challenges in terms of ongoing illegal caviar trade; chapters six and seven present the security challenges that have emerged from regulatory gaps and grey areas; and finally chapter eight analyses the geopolitical challenges borne out of the idiosyncrasies in the regulatory frameworks. As a foundation to these later analyses, the following section explains in detail the CITES regulations related to sturgeon and caviar trade, and describes how these regulations are transposed into EU law.

### 4.1.2 CITES Resolution Conf. 12.7

CITES Resolution Conf. 12.7 (Rev. CoP17)[[20]](#footnote-20) entitled ‘*Conservation of and trade in sturgeons and paddlefish*’, is the authoritative document outlining the measures that all CITES parties should take in order to ensure sustainable trade in sturgeon and sturgeon derivatives. CITES Resolution Conf. 12.7 details the regulations regarding the import, (re)export, and labelling requirements for both international and domestic trade in sturgeon and caviar. In the following subsections I outline the major regulatory mechanisms included in CITES Resolution Conf. 12.7.

CITES Export quotas

One of the major steps the CITES Secretariat took in regulating international caviar trade was through the establishment of export quotas for caviar harvested from sturgeon shared stocks[[21]](#footnote-21). CITES first implemented caviar export quotas in 2000. Through this regulation all range states to shared stocks are required to establish and agree upon scientifically informed annual catch and export quotas for each of the sturgeon species native to that stock. On agreeing these quotas, the range states are required to report the quotas to the CITES Secretariat for approval. The agreed quotas are then publicly listed on the CITES website. When no quota has been published for a CITES listed sturgeon species in a shared stock, then international trade in that species from the stock in question, is prohibited until the quotas are reviewed the following year. As such, CITES Parties are reminded to not accept imports of caviar and meat from sturgeon species originating in shared stocks, unless export quotas have been agreed and published.

Despite the introduction of the export quota system, data shows incidences of caviar range states significantly exceeding their export quotas. In 2004 and 2005 Azerbaijan exceeded their export quota for Stellate sturgeon (*A.Stellatus*) by a total of 3193kg (UNEP-WCMC, 2008: 13). Moreover, in 2006 there was a suspension of international trade in wild caviar, as no export quotas were published by the CITES Secretariat for that year - apart from an exceptional export quota of caviar from Persian sturgeon (*A.Persicus*) from Iran. Despite this trade suspension, in 2006 Kazakhstan exported 203kg of caviar from Stellate sturgeon (*A.Stellatus*) and 199kg of caviar from Beluga sturgeon (*Huso Huso*) (Engler & Knapp, 2006:28)[[22]](#footnote-22). The practice of exceeding export quotas draws attention to how some exporting and importing states have seemingly interpreted the export quotas as a legislative ‘grey area’. Clearly some states such as Kazakhstan, have historically exhibited a flagrant disregard for the export quota system. On the other hand, some importing states have also either disregarded the quotas or been misinformed about the species and quantities they can legally import, and from which states. When exporters continue to disregard the export quotas, this can lead to confusion about the legality of caviar entering the market. This draws attention to the need for CITES Parties to be proactive in not accepting imports of caviar when no export quotas for shared stocks have been published.

Between 2006 and 2010 international trade in wild caviar was permitted, but quotas showed downward trends. In many cases, “during most of these years exporters were not even able to meet their quotas, reflecting the scarcity of the species” (UNODC, 2016:87). Since 2010 export quotas from shared stocks have not been communicated by the range states to the CITES Secretariat. The Secretariat has subsequently published zero export quotas from sturgeon shared stocks. For sturgeon originating from non-shared stocks, CITES Resolution Conf 14.7[[23]](#footnote-23) details the management of nationally established export quotas. But in a parallel trend to the export quotas from shared stocks, since 2011 there have been no nationally established export quotas for wild-caught sturgeon from non-shared stocks reported to the CITES Secretariat[[24]](#footnote-24). This effectively means that international trade in wild caught sturgeon and their derivatives including caviar and meat is currently illegal, and has not been legal for almost a decade. Notably, the declining - and currently zero - export quotas for wild-caught sturgeon and their derivatives, has coincided with, and arguably fuelled the dramatic uptake of aquaculture methods for caviar production. Between 1998 and 2006, 97% of the EU’s caviar imports were sourced from wild sturgeon (Engler & Knapp, 2008:12). But by 2015, exports of caviar from aquaculture made up 95% of all reported global caviar trade by weight (Harris & Shiraishi, 2018:8).

Whilst the implementation of export quotas has played a fundamental role in transforming the caviar industry, the system itself is complex and marred with inconsistencies in both design and implementation. One issue as alluded to above, is the mixed levels of compliance that both exporting and importing countries have displayed with regards to the export system. The long-standing zero export quotas established since 2010, has solidified the status of aquaculture caviar as being the only ‘legal’ importing option. But the historical practices of range states exporting illegal quantities of caviar, raises concerns about the potential for them to continue to find ways to export wild caviar despite the long-term suspension on international exports.

Indeed, there are suggestions that whilst the export quotas have prompted a rapid shift to a caviar industry built on aquaculture, a perverse impact of this has been that aquaculture can provide cover for illegal activity. Ex-enforcement officer Michael explained that “if you look at the United states, they have had quite a number of prosecutions, and cases where there has been laundering through aquaculture operations… maybe some of it is being laundered through European aquaculture operations too”[[25]](#footnote-25). Researcher Yvar reiterated a similar message, saying “there is much more to say about the role of caviar farms in Europe”[[26]](#footnote-26). These interlocutors both expressed concerns that a lack of monitoring of EU aquaculture facilities is a significant gap in the enforcement of the regulatory frameworks. To this extent, attention amongst NGOs in particular, and to some extent enforcement authorities and policymakers, has begun to shift towards understanding the role of EU aquaculture facilities in laundering wild caviar[[27]](#footnote-27). In chapter five I examine in more detail how this laundering dynamic has emerged as a result of gaps and grey areas in the regulatory frameworks.

Furthermore, the existence of two separate systems for managing export quotas from shared stocks and national stocks, can create a situation in which some forms of international trade in wild sturgeon products are permitted, whilst others are criminalised[[28]](#footnote-28). Moreover, whilst the *international* export of sturgeon and caviar may be prohibited, this does not automatically mean that wild sturgeon fishing is prohibited; or that trade in sturgeon and caviar is prohibited on *domestic* markets. These double systems can create loopholes for illegal trade. The complex technicalities of the export quota systems can produce issues for enforcement officials who are tasked with ascertaining the legality of caviar imports, exports, and domestic products, when multiple legal systems are in place. The irregularities in these export systems thereby “contribute to a lack of clarity from where and under what circumstances caviar from the wild can still enter the market” (Harris & Shiraishi, 2018:66-67).

A final under-examined gap in the export quota system and CITES Resolution Conf 12.7 generally, is that the resolution does not explicitly acknowledge the implication of the regulations and mechanisms such as export quotas, upon fishing communities in sturgeon range states. The Resolution urges sturgeon range states to: “promote the sustainability of sturgeon and paddlefish fisheries through appropriate management programmes”, such as the export quotas; and also to “explore ways of enhancing the participation of representatives of all agencies responsible for sturgeon paddlefish fisheries in conservation and sustainable programmes for the species” (CITES, Resolution Conf.12.7, 2016). However, there is arguably a disconnect between these aims in practice. The implementation of the zero export quotas effectively precludes any possibility for fishermen to participate in sustainable use programmes, as wild sturgeon fishing has largely been prohibited[[29]](#footnote-29) and replaced by sturgeon aquaculture. To this extent, the impacts of the regulations upon the livelihoods of sturgeon fishing communities have largely been overlooked in the process of adopting zero export quotas. The absence of recommendations in CITES Resolution Conf 12.7 to support sturgeon fishermen or otherwise shield them from the impact of zero export quotas, is a significant gap in the regulatory system. Later in this chapter, I argue that criminalizing the livelihoods of sturgeon fishermen via the regulatory frameworks, can actually serve to catalyse poaching in sturgeon range states.

CITES Universal labelling system

The other significant component of CITES Resolution Conf. 12.7 is the universal labelling system for caviar which was introduced in 2000 and has been amended over the intervening years. The the universal labelling system is deemed necessary as a way of ensuring that the caviar supply chain is transparent and traceable, so that consumers are aware of the provenance of the caviar and its trade history. CITES claim that since its introduction, the “labelling of all caviar in trade has proven to be a fundamental step towards the effective regulation of trade in caviar of sturgeons and paddlefish” (CITES, 2016:1). The labelling system covers both wild-caught and captive-bred caviar, and requires that countries producing caviar and repackaging caviar, must adhere to a standardised marking system that allows straightforward identification of the source of the caviar. Resolution Conf. 12.7 states that the labelling system applies to all caviar, whether being sold internationally or domestically.

In order to ensure ‘legal and traceable trade’, Resolution Conf. 12.7 outlines particular specifications for what information should be included on the design of the label, and how the label should be affixed to the caviar container[[30]](#footnote-30). The label applied to each caviar container must be non-reusable, meaning that it should ideally seal the container and cannot be removed or transferred to another container without damage. In instances where the label does not seal the container, the caviar must be packaged in a way that affords visual evidence of any opening of the container. Moreover, the label must include the following information:

a species code for the species of sturgeon the caviar is harvested from;

the source code of the caviar to indicate whether it is wild (W), farmed (C) , or caviar produced from a female born in captivity with at least one parent originating from the wild (F);

the ISO code for country of origin;

the year the caviar was harvested;

the official registration code of the processing plant;

and the lot identification number for the caviar.

For example: HUS/W/RU/2000/xxxx/yyyy (see image 4.1 and image 4.2 as examples of caviar labelled according to CITES regulations). If the caviar is repackaged, then the repackaging facility is responsible for affixing a label to the caviar container which contains some extra details related to the repacking process. The correct CITES labelling for repackaged caviar includes:

species code;

source code;

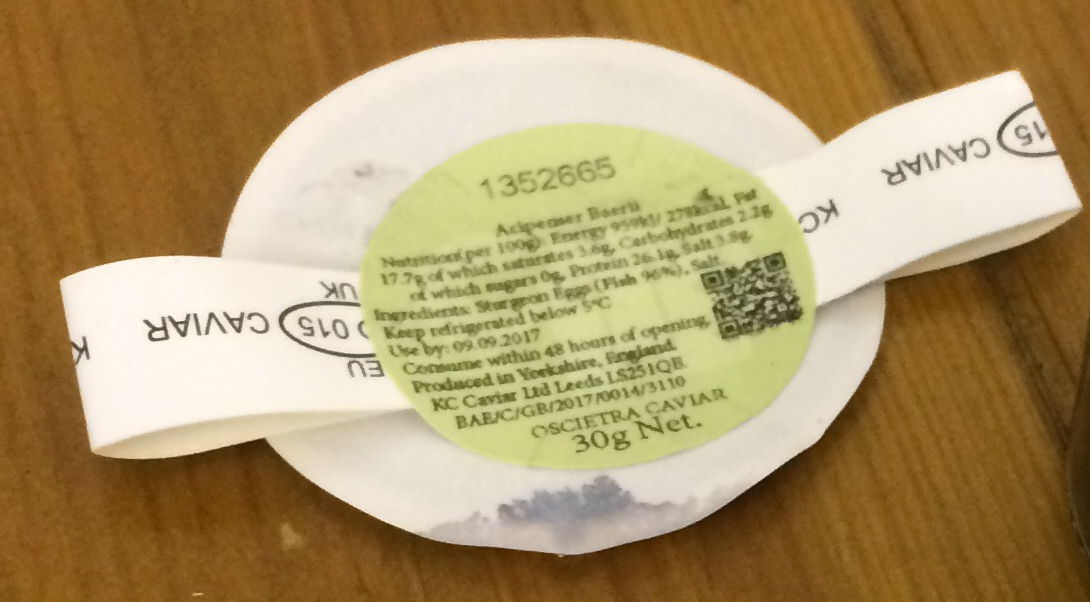
ISO country code;

the year the caviar was repackaged;

the official registration code of the repackaging plant, which incorporates the ISO code of the country repackaging if it is different to the country of origin;

and the lot identification number, or CITES permit or re-export certificate number.

For example: PER/W/IR/2001/IT-wwww/zzzz. All caviar containers must be labelled in accordance with the labelling requirements of CITES Resolution Conf. 12.7 or they can be seized by enforcement authorities and are classified as illegal caviar products, even if the caviar is from a farmed source.

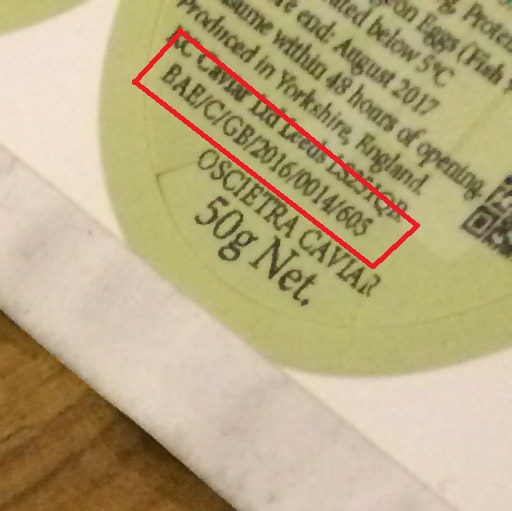


##### Image 4.1: Example of a company’s caviar label that adheres to CITES regulations.

*The green label contains the CITES code. Once attached to the container the white wrap around label cannot be removed without being damaged. (Photo: Authors Own)*

The CITES labelling system is not fool-proof in preventing illegal trade and fraud, with instances of mislabelled caviar being common. In order to minimise the risk of fraud, some states have gone beyond the requirements of the universal labelling system by integrating security features such as holograms or watermarks into their labels. This is not an explicit requirement under Resolution Conf. 12.7. However there are increasing calls made by NGOs, industry representatives, and enforcement officials, to amend the Resolution in order to make security features an explicit requirement[[31]](#footnote-31).

This highlights the major gap/grey area in the universal labelling system, namely that there is no universal label design or required security features beyond the code system. Instead, the design of the labels, their placement and security features differ greatly both within and between countries. This poses significant issues for enforcement authorities met with innumerable contrasting labels that could be fraudulent. As such, there are calls for CITES Management Authorities to implement a system whereby centralised labels are issued that must be used by all caviar producers and repacking facilities in that territory. Some EU Member States have begun to implement this system. For example NGO project manager Sigrid explained that Hungarian law now mandates that “only certified printers are allowed to produce these labels. I think that there are only two companies in Hungary that are certified [...] So it’s not the caviar producers printing the labels, but it’s the printing houses that print them and send them to the producers”[[32]](#footnote-32). UK based caviar producer Ethan, explained that the labelling system had also recently changed in the UK, and where the old system meant you could print the labels “willy-nilly”, now “every CITES label has a number [...] I ordered like 3000 of these last year. And every one is numbered [...] They’ve got this official watermark too”[[33]](#footnote-33). But while the centralisation of labels is not mandated under the CITES Resolution, the current system is problematic. Sigrid therefore calls for a centralisation of caviar labels “at least on a European level. Because still if every country produces their own standards, or uses their own standards…. For a customs officer, in Heathrow, they would have to know, how are they doing it in Spain? And how are they doing it in Poland?”[[34]](#footnote-34)



##### Image 4.2: Close up of an example of the CITES universal labelling system.

*Caviar produced by KC Caviar, UK. BAE/C/GB/2016/0014/605. This is caviar produced by a Siberian Sturgeon (A.Baerii); Captive bred; Country of origin is Great Britain; 2016 is the year of harvest; 0014 is the official registration code for KC Caviar as a processing plant; 605 is the caviar lot number. (Photo: Author’s own)*

A further grey area identified within the CITES labelling system, is the labelling of repackaged caviar. According to the labelling regulations, repackaged caviar must display the year of repackaging on the label. However, repackaged caviar does not have to include the year the caviar was harvested on the label. The current system leaves room for old caviar to be repackaged and sold, with Qerene explaining that “in theory if you repack your caviar four times, you can sell it for about five years, the same caviar!”[[35]](#footnote-35). This has led to some caviar producers demanding that the year of caviar production must be retained on the labels of repackaged caviar. However Qerene acknowledged that “the repackers don’t want this to be changed of course”, and that “the whole caviar business is based on repackaging”, so “as long as there is repackaging there will be illegal things happening”[[36]](#footnote-36). As such, the labelling of repackaged caviar is clearly a grey area in the labelling system, and points to other nodes in the caviar production chain where illicit activity takes place (as discussed further in chapter five).

Moreover, just as the export quota system has gaps in both design and implementation, so too does the labelling system. Currently “the implementation of the caviar labelling system is lacking in key range and consumer states, and even where it is implemented, several anomalies were found” (Harris & Shiraishi, 2018:9). A recent rapid assessment of the global caviar market by Harris and Shiraishi (2018) suggested that there is a widespread lack of adherence to the requirements for labelling of caviar on domestic markets. Of the six countries[[37]](#footnote-37) included in their study, only Germany and France had implemented the labelling system for domestic trade, leading the authors to suggest that the lack of implementation of this aspect of CITES Resolution Conf. 12.7 is “undermining the original purpose of the CITES caviar labelling system to ensure legal and traceable trade” (ibid: 9). Thus, although the labelling system has proven revolutionary for increasing traceability and transparency in caviar trade, there are a number of inconsistencies within the system. These include issues with implementation and enforcement of the labelling system both for international and domestic markets; but also include issues caused by the ambiguity around how a label should visibly appear, thereby resulting in the proliferation of innumerable caviar labels across different countries.

This section has outlined CITES Resolution Conf. 12.7 and the main mechanisms of this resolution, which are designed to regulate international trade in sturgeon and caviar. I have described how a major impact of the regulations has been the global shift from wild-caught caviar to farmed caviar production. But, I have also identified some of the gaps and grey areas in the Resolution, and began to point to some of the diverse possible impacts of these regulatory discrepancies. In the next section I describe how CITES Resolution 12.7 has been implemented in the EU, and also consider how the regulatory inconsistencies manifest in the EU.

### 4.2.3 Implementing CITES Resolution Conf. 12.7 in the European Union

The European Union has enacted the measures and recommendations outlined in CITES Resolution Conf. 12.7 via the EU Wildlife Trade Regulations, which are directly applicable to all EU Member States. The EU Wildlife Trade Regulations are Council Regulation (EC) No. 338/97 known as the ‘framework regulation’, which outlines the legal requirements Member States must follow in accordance with the trade in wild flora and fauna; and Commission Regulation (EC) No. 866/2006 known as the ‘implementing regulation’ which details the practical aspects of enacting the wildlife trade regulations. These regulations provide the legal framework for international as well as domestic trade in wild animals and plants in the European Union, and are required to be implemented by the governments of all EU Member States.

In relation to caviar, it was through the ‘implementing regulation’, Commission Regulation (EC) No. 866/2006, that in 2006 a specific EU regulation on caviar labelling came into force, which integrates the requirements of the CITES universal labelling system. This was later amended by Regulation (EC) No. 100/2008, and determined that the CITES labelling system was legally binding for all EU Member States. It also required that the labelling of all caviar containers - irrespective of size - was obligatory, should be carried out in accordance with the CITES regulations, and included those caviar containers being sold on EU domestic markets, as well as caviar containers to be exported from the EU.

Overall, the implementation of CITES Resolution Conf 12.7 has had an obvious impact on levels of illegal caviar trade in the EU. So much so, that a UK enforcement officer suggested that “on the face of it [illegal] caviar trade has gone”[[38]](#footnote-38). Indeed, some actors in the EU have framed the implementation of the regulatory frameworks as a ‘success story’. However, there is a need to problematize the assumption that the implementation and impact of the regulations in the European Union has been overwhelmingly successful. Instead, I argue that the inconsistencies in the design of CITES Resolution Conf 12.7 (as outlined in the previous section) have also been transposed into EU laws; and there are also gaps and grey areas in implementation of these EU caviar trade laws. In this regard, I demonstrate that the story of regulating caviar trade in the EU cannot be solely framed as a ‘success’, given that there are obvious flaws in the design and implementation of the regulations. I now outline some of the issues complicating the implementation of caviar trade regulations in the EU.

As the biggest global importer of caviar, and “one of the principal markets for illegally traded caviar”, it was agreed at the 53rd meeting of the CITES Standing Committee in Geneva in 2005, that the EU enforcement group[[39]](#footnote-39) (established under the EU Wildlife Trade Regulations), would “take the lead on addressing this issue” (Knapp *et al*. 2006:3). In taking a leadership role on tackling illegal caviar trade, the European Commission organised and hosted a workshop in Brussels in June 2006 entitled ‘International Sturgeon Enforcement Workshop to Combat Illegal trade in Caviar’. One of the stated aims of the workshop was to produce a set of practical measures that would “reinstate the countries commitment to the implementation and enforcement of CITES Resolution Conf. 12.7” (ibid: 4). The workshop recognised that since the listing of sturgeon on CITES and the creation of CITES Resolution Conf. 12.7, “greater trade regulation and increased scrutiny of fisheries management have resulted”, (ibid:11). At the same time, the workshop clearly identified that the implementation of CITES Resolution Conf 12.7 via the EU Wildlife Trade Regulations was far from perfect, as one of the working groups at the conference discussed the topic of ‘legislative gaps and weaknesses, national and international’.

One such gap and weakness, is the variation between the implementation of the EU Wildlife trade regulations between Member States. Although the EU Wildlife Trade Regulations are directly applicable in all EU Member States, “the necessary enforcement provisions must be transposed into national legislation and supplemented with national laws for matters that remain under the sovereignty of each Member State such as penalties”, (European Commission, 2010: 13). Moreover, the regulations are also enacted according to the legislation that each state has regarding biodiversity conservation and customs regulations. Thus, a diverse range of factors including, but not limited to, national biodiversity priorities, penal systems, enforcement capacity, and funding, influence the variegated manner in which EU Member States integrate EU caviar trade laws into their national legislation. An impact of the variability in Member States’ national transposition of EU law, is that very different penalties for CITES offences exist between EU Member states. The maximum fine for a CITES offence is as small as 3570 euros in Romania, and in the UK is unlimited; and the maximum prison sentence ranges from 6 months to 10 years across EU Member States (TRAFFIC, 2014).

Furthermore, within EU Member States there are issues regarding particular aspects of the regulations being implemented and enforced into national law, whilst others are only partially, or not implemented. For example, in May 2006 as Romania prepared to accede to the EU, the country enacted a ban on all commercial fishing of sturgeon in Romanian waters[[40]](#footnote-40). However since joining the EU, Romania has been less proactive in implementing compulsory aspects of EU caviar trade regulations that are outlined in the Commission's ‘implementing regulation’. Over ten years since the EU legislation regarding caviar labelling made the domestic labelling of caviar mandatory, this has not been fully implemented in Romania. For example, the results from a 2013 WWF market survey on illegal caviar trade in Romania (and Bulgaria), found that out of 14 samples of caviar acquired from Romania, 6 of these samples did not have mandatory CITES labels and codes (Jahrl, 2013: 41). The non-compliance could also be higher than these results suggest, because a further 5 of the 14 samples acquired in Romania were served at restaurants or private parties where it was not possible to ascertain whether the caviar came from a correctly labelled container. This illustrates that there are discrepancies within EU Member States’ own implementation of the regulations: in some instances “the implementation of what is already legally required is not done, or it’s not working”[[41]](#footnote-41).

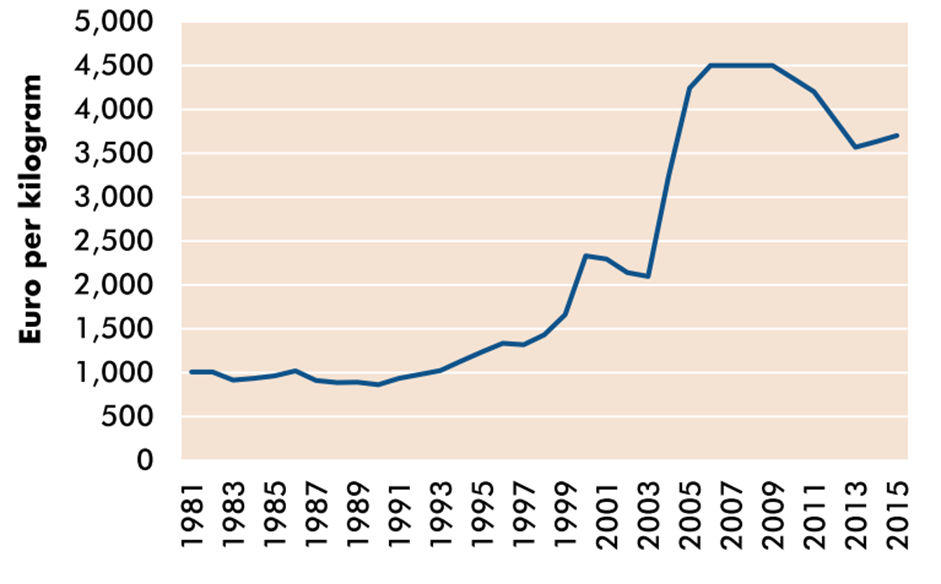
The EU Wildlife Trade Regulations outline clear regulatory frameworks for the implementation of CITES Resolution Conf 12.7 into EU law. The EU has historically taken a leadership role in tackling illegal caviar trade globally, by: amending regulations; placing sturgeon and caviar as a CITES priority area; and continuing to reinstate the EU’s commitment to implementing and enforcing CITES Resolution Conf. 12.7 in the Member States. In practice however, the implementation of CITES Resolution Conf 12.7 in the EU Member States has been somewhat chequered. This is primarily because it is the responsibility of the Member States to integrate the EU Wildlife Trade regulations into their national legislation, and thereby fulfil their obligations as parties to CITES. As a result, the regulations have been implemented to varying degrees and display discrepancies both within states and between EU Member States.

In the following discussion, I examine the impact that the regulatory frameworks have had – despite their limitations or absences - on EU illegal caviar trade. The impact of the regulations is often explained through reference to seizure data; and I critically reflect upon the extent to which such data can tell the full story about the impacts of the regulatory frameworks on dynamics of illegal caviar trade in the EU. On the contrary, I argue that seizure data is flawed and incomplete; and is mobilised in a depoliticised way that presents a narrow view about the impacts of CITES Resolution Conf 12.7 on illegal caviar trade dynamics in the European Union. In section 4.4, I highlight some of the hidden political-ecological impacts that arise from the limitations and absences inbuilt in the EU caviar trade regulations.

## 4.3. Discussion: Unpacking the impact of caviar trade regulations upon caviar seizures

### 4.3.1 Declining caviar seizures

Over the last two decades, changes to the regulatory frameworks have caused the characteristics of the global caviar trade to change dramatically. The introduction of the export quota system in 2000 led to a significant decline in wild sturgeon catch and the export of wild caviar, and subsequently prompted the widespread development of aquaculture projects for caviar production. The implementation of the export quotas produced an initial marked decline in the availability of all caviar on the global market in the early 2000s, and there has been a time-lag for farmed caviar to fill the market gap. The initial scarcity of caviar prompted a sharp rise in the prices of legal caviar in the early 2000s (see figure 4.1), and a corresponding rise in illegal trafficking in caviar in order to meet global demand (UNODC, 2016: 88).



#### Figure 4.1 Average retail price of Osetra caviar (euro/kg) 1981- 2015

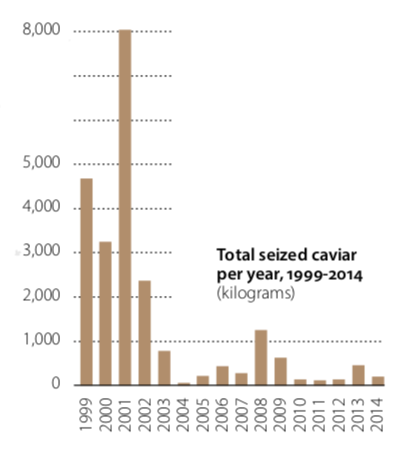
*Source: UNODC World Wildlife Crime Report (2016)*

Caviar producer Oliya reflected upon her memories of the effect of the CITES listing of sturgeon and the implementation of export quotas, saying:

I remember at the beginning in 1998 and after, the price of the caviar was getting up, up, up! [...] Because CITES set the quota. This quota should normally be respected by the countries making the caviar. So the quota is over the years getting less and less and less. But if the quota is less, then the price is going up. If the price is high, then the black market is more heavily involved[[42]](#footnote-42)

The initial rise in illegal activity purportedly caused by the CITES listing of sturgeon and introduction of export quotas, has been evidenced by the exponential increase in seized caviar in 2001 (see figure 4.2). However, since the early 2000s caviar aquaculture has continued to grow exponentially, and now the legal international trade in caviar is almost entirely supplied by caviar from captive-bred sturgeon. As shown in figure 4.3, by 2013 the amount of farmed caviar in international trade had almost reached the levels of wild caviar which was being exported prior to the 1998 listing of sturgeon on CITES and the implementation of export quotas in 2000. Thus, the regulations - in particular export quotas - have had a dramatic impact on the functioning and the characteristics of the caviar industry globally.

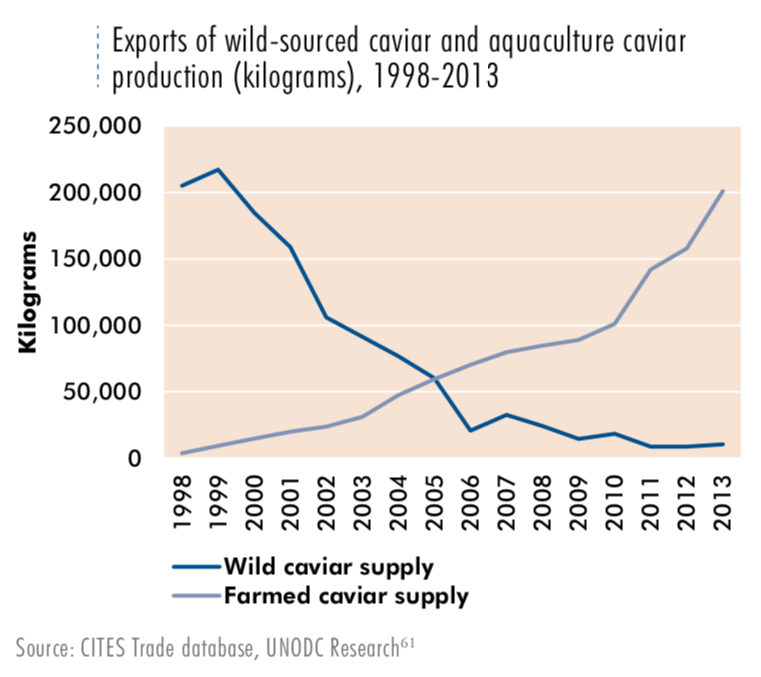
Since the implementation of the international regulatory frameworks and mechanisms discussed in the previous section, international seizures of illegal caviar by weight, have dramatically declined on a global level (see figure 4.2). The mirrored trends of declining market supply of wild-caught caviar and declining seizures of contraband caviar prompted UNODC to depict the global caviar trade as having undergone an exemplary transformation, illustrating that “the growth of farming can reduce demand for illegally sourced wildlife in international markets” (UNODC, 2016:91). Such high level proclamations have fostered a sense amongst some policy actors, that the impacts of the regulations on illegal caviar trade have been significant and positive.



#### Figure 4.2: Total seized caviar per year, 1999 - 2014 (kg)

*Data taken from World WISE database. Source: UNODC World Wildlife Crime Report (2016)*

Indeed, there is a widespread acceptance that the exponential growth of the farmed caviar industry has destabilised illegal caviar trade in the EU. This sentiment is particularly echoed amongst policymakers and enforcement officials in Western European Member States. A representative of DG Environment in the European Commission outlined his feeling that “the issue of illegal [caviar] trade has been replaced”[[43]](#footnote-43) in the EU, by the establishment and growth of caviar aquaculture, and the improved traceability afforded by the universal caviar labelling system. Some have gone as far as to portray the impact of the regulations in a particularly positive light.



#### Figure 4.3: Exports of wild-sourced caviar and aquaculture caviar production (kg) 1998-2013.

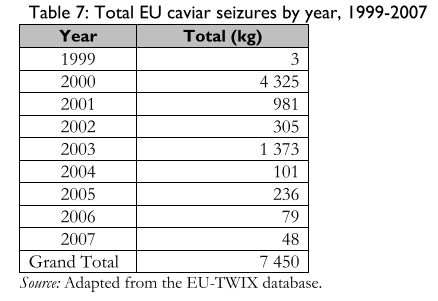
*Data taken from CITES Trade database. SOURCE: UNODC, World Wildlife Crime Report (2016)*

However, there is pushback against this from a few dissenting voices. For example NGO project manager Sigrid, described her difficulties in challenging the entrenched views of policy makers and civil servants in the CITES Management Authority[[44]](#footnote-44) of the German Federal Agency for Nature Conservation (BFN). Sigrid explained how representatives of the CITES Management Authority in Germany have tried to discourage and block attempts to (re)open discussion about possible gaps in CITES Resolution Conf 12.7 and problems with the implementation of the resolution in the European Union. Instead, Sigrid explained how one representative of the German CITES Management Authority vehemently defends that the regulation of the caviar trade in the EU has been “a success story!”. Sigrid quoted the individual as saying:

Investigations and criminal procedures regarding wild caviar belong to the past… there is hardly any illegal trade in wild sturgeons any more… all caviar comes from farms [...] It is a success story. Exclamation Point. Full Stop. Capital letters[[45]](#footnote-45)

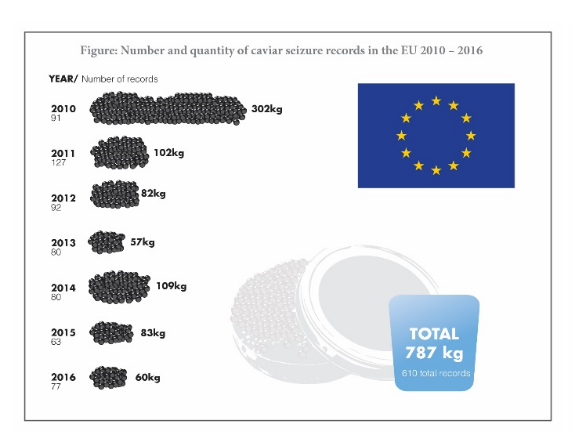
The assertion that investigations and criminal procedures regarding wild caviar belong to the past, is ironic given that between 2010 and 2016, the EU Member State reporting the most seizures of illegally trafficked caviar was Germany, with 222 cases (Harris & Shiraishi, 2018:30). Admittedly, it is unclear how many of these 222 cases involved trafficked caviar from wild-origin (farmed caviar can also be classified as illegal if incorrectly labelled). However there was a notable case in 2013, when the German Customs Investigation Office in Cologne discovered an incident of large-scale illegal caviar trade and tax avoidance from an individual fraudulently selling 100kg of wild-caught Beluga caviar as caviar that was captive-bred in Germany. This individual was subsequently sentenced to one year in prison[[46]](#footnote-46). Thus, I would argue that it is too early to suggest that the ‘success’ of implementing CITES Resolution Conf 12.7 in the EU, has meant that “investigations and criminal procedures regarding wild caviar belong to the past”. Indeed in Romania alone, the Border Police Inspectorate has filed 49 lawsuits against sturgeon crimes between 2015-2019 (Daea, 2019). As such, it is important to analyse how and why such hyperbolic conclusions have taken root amongst some parties in the EU; and examining how these actors deploy caviar seizure data is a useful starting point.

Whilst there have been recent examples of trafficking in wild caviar in the EU, it is undeniable that relative to seizures of caviar in the early 2000s (see table 4.1), the quantity of seizures of caviar by weight in the European Union has continued to plummet since 2010 (see figure 4.4).



###### Table 4.1: Total EU Caviar seizures by year, 1999 - 2007.

*Data taken from EU-TWIX Database. Source: Engler & Knapp (2008)*



#### Figure 4.4: Number and quantity of caviar seizure records in the EU 2010 - 2016

*Data taken from EU-TWIX Database. Source: Harris & Shiraishi (2018)*

The declining seizures have been central to the claims made by Western European policymakers and enforcement officials in particular, that CITES Resolution Conf 12.7 and its related protocols have been implemented effectively in the EU. An underlying implication of these assertions is that there have been positive impacts upon the criminality associated with illegal caviar trade in the EU. For enforcement officers working on EU CITES issues, their approach to work is centred around the notion that “seizures equate to evidence that a trade is taking place”[[47]](#footnote-47). They explained that as seizures of caviar have dramatically declined across the EU, “the intelligence dried up”[[48]](#footnote-48) too. As such, many enforcement officials have come to the conclusion that the implementation of regulations and the enforcement of trade-regulating mechanisms such as zero export quotas, have dramatically impacted the extent of the operations of criminal networks trading internationally in caviar[[49]](#footnote-49). Ex-enforcement officer Michael, explained that as quotas declined and eventually were set at zero in regions such as the Caspian Sea and Black Sea, “that made it extremely difficult for anyone to launder caviar into the international market”[[50]](#footnote-50). Moreover, he suggested that the reality of greatly depleted wild sturgeon populations likely meant that poachers were less able to locate gravid female sturgeon, meaning that in terms of quantity, less illegal trade was taking place due to the scarcity of the resource[[51]](#footnote-51). As such, Michael suggested that once export quotas were established, “the whole thing seemed to peter out” in terms of seizures, and “life for the law enforcement community became more simple”[[52]](#footnote-52). Thus, declining seizures of wild caviar have been codified by actors from particular occupations - notably related to policy and enforcement - as indicative of declining criminality and therefore exemplary of the positive impact of CITES Resolution Conf 12.7 on levels of illegal caviar trade in the European Union.

Clearly there is an element of truth to these conclusions; but they are not the full story, despite being presented as such. Moreover, such conclusions have powerful material impacts. This is forcefully demonstrated by the downgrading of caviar and sturgeon as a CITES priority at the EU policy level, and also in EU Member states such as the UK. Oliver, an inspector for the UK NWCU explained the logic behind the delisting, stating that “the priorities are all about seizures really”, and because “we are just not seeing the trade within and into the UK”[[53]](#footnote-53) caviar has come off the CITES priority list. Similarly, Ulmer, a representative of DG Environment in the European Commission who works on EU wildlife trade policy, explained that in setting CITES priorities at the EU level “the question is the extent”[[54]](#footnote-54) of illegal trade, which is typically reflected in the number of seizures made, and the size of the seizures made. Due to declining seizures of contraband caviar in the EU, Ulmer acknowledged that caviar “doesn’t feature among the top priorities of what the EU wildlife trade policy is focussing on now”[[55]](#footnote-55). The relegating of caviar on the CITES priorities of both the EU and EU Member States such as the UK, reflects the powerful material impacts that can ensue from using raw seizure data to guide policy.

Whilst these enforcement officials and the representative of DG ENV presented declining seizures as being indicative of reduced criminality in the caviar trade, they were however, more circumspect in their proclamations about the overall ‘success’ of CITES Resolution Conf 12.7 in preventing illegal caviar trade in the EU. Rather than declaring that investigations and criminal proceedings related to caviar trade belong in the past, Ulmer, recognised that illegal trade “is still an issue, and there are still seizures”, but he did temper this by saying that illegal trade is “probably not as important as before”[[56]](#footnote-56) in terms extent. When pushed on whether the lack of seizures undeniably equates to severely diminished levels of criminality, Oliver conceded that “*maybe* criminals are either being clever and not getting detected and are changing their methods and it’s not getting picked up *or* the trade’s not there”[[57]](#footnote-57). In contrast, giving a critical reflection on the story that seizure data alone tells, ex-enforcement officer Michael said, “I think if you looked at current statistics, I think they would probably suggest that not a lot is happening. But from a sort of criminology point of view if you like, that doesn’t make sense”[[58]](#footnote-58).

In what follows, I explore Michael’s hypothesis that there is likely to be more going on below the surface of the seizure data. In fact, I argue that in the case of illegal caviar trade in the EU, raw seizure data is mobilised in an uncritical manner, which presents a narrow picture about the impacts of CITES Resolution Conf 12.7 in the European Union. This narrow view centres around seizure data and its purported links with criminality; and has the potential to powerfully shape political priorities and the allocation of resources, whilst overlooking other hidden implications arising from the implementation of CITES Resolution Conf 12.7 in the EU. As a result, what Yvar calls a “political reality”[[59]](#footnote-59) is constructed, in which EU institutions, EU Member State government’s and enforcement bodies are presented as being in control of the illegal caviar trade situation in the EU. On the contrary, I argue that seizure data cannot be taken at face value as an indication that illegal caviar trade is no longer a significant problem in the EU. In what follows, I critically analyse and re-contextualise the seizure data in order to highlight gaps and grey areas in these data, and thereby critique using such data to guide political priorities.

### 4.3.2 Deconstructing seizure data

Speaking about the issue of illegal caviar trade at the 8th International Symposium on Sturgeon (ISS8) in Vienna, a representative of WWF-International explained that there is a “widespread perception that the problem is largely sorted”, but he urged that the diverse audience of attendees “don’t accept that”[[60]](#footnote-60). On the contrary, he stressed that “significant poaching problems still exist, and it is even worse [in volume] in some instances than legal trade in the last decade”. This stance seems at odds with the above conclusions that suggest illegal caviar trade has declined enormously over the last decade, when extrapolated from seizure statistics.

The apparent contradiction is rooted in the fact that seizure data is partial and cannot fully account for dynamics such as poaching levels in sturgeon range states. As such, the WWF representative maintained that it is necessary to continue to challenge the dominant narratives based upon seizure data, even if they are becoming increasingly entrenched. For example, he explained how even UNODC had initially suggested in draft versions of the 2016 World Wildlife Crime report that the regulation of caviar trade had been a ‘success story’, before the peer reviewers unequivocally challenged this and said “no way! It’s a tragedy”[[61]](#footnote-61). As a result, the report’s finalised caviar case study is more measured in its conclusions. Similarly, NGO project manager Sigrid, acknowledged the “widespread belief that the caviar trade is under control”, primarily “because seizures have decreased a lot”[[62]](#footnote-62). But she stressed that it is “not the case that the caviar trade is under control”, and that actually “seizure data doesn’t say enough of the actual picture”[[63]](#footnote-63). Building upon this, I argue that seizure data does not tell ‘enough of the actual picture’ regarding the impact of regulations, because these data are inherently flawed and simplify reality in a particularly depoliticised way. As such, caviar seizures in the EU should not be used as a proxy for criminality when making conclusions about the extent of illegal caviar trade.

Yvar, an academic who has undertaken extensive research on the illegal caviar trade, was similarly critical of the mobilisation of seizure data. He stressed the importance of challenging the discourses that rely on seizure data alone to make the case that EU caviar trade regulations have been effective in preventing illegal caviar trade. Yvar criticised the manner in which states and the EU use seizure data “to argue what kind of political priorities they have”, describing these actions as “ridiculous” and arguing that “numbers play too much value in society in this sense”[[64]](#footnote-64). Moreover, Yvar argued that:

A lot of problems are in this data [...] Some countries do not report at all! The commas are not in the right place. For instance, we know that a very important link was Greece to enter the EU, but there are no records from Greece[[65]](#footnote-65).

The problems inherent with seizure data are referenced by NGO, TRAFFIC, in statements made in multiple reports on the caviar trade (Engler & Knapp, 2008; Harris & Shiraishi, 2018), which declare that “trends in seizure records derived from data are *only indicative of patterns of illegal trade* because countries/territories *differ in their enforcement effort, their reporting and recording of information*” (Harris & Shiraishi, 2018: 16 emphasis added). But despite this, seizure data continues to be invoked as a measure of the positive impacts of the caviar trade regulations, without making reference to enforcement dynamics or the context in which the data is collected, recorded, and reported.

Taking these points into consideration, when further analysing the caviar seizure data[[66]](#footnote-66) it became clear that these data are flawed, given that the reporting on seizures from EU Member States is incomplete and uneven. Information on wildlife trade seizures in the EU is held in the EU-TWIX database, however reporting to this database is voluntary for EU Member States. The incompleteness of the data set is something that is not widely acknowledged and was not even mentioned as a possible limitation of the seizure data by the enforcement officials or EU policymakers interviewed for this research. However, when analysing a 2017 European Commission report compiled by TRAFFIC[[67]](#footnote-67), which provides an ‘*overview of important wildlife seizures in the European Union between January and December 2016*’, the report states that only 24 of 28 EU Member States submitted reports to the European Commission on seizures taking place at the borders of the European Union during that year. Further, the report only uses the data provided by 18 Member States because Denmark and Finland did not report data on ‘significant seizures’, and the report also excludes data from Estonia, Italy, Sweden and Slovakia as these countries only reported seizures taking place *within* the EU in 2016, and the purview of the report was to document seizures being imported *into* the EU. The report also acknowledges that some of the 18 Member States provided information on seizures to the European Commission for only a part of the reporting period (see table 4.2 for information on European Commission reports from 2012 - 2017). Thus it is impossible to suggest that these seizure data provide a full picture of illegal caviar trade in the European Union, because when countries do not report, or only report for part of the period, this effectively means that “trade lines are completely out of the spotlight”[[68]](#footnote-68).

Interestingly though, despite the aforementioned inconsistencies in EU Member State reporting, the European Commission report providing an ‘*overview of seizures of CITES-listed wildlife in the European Union January to December 2017*’[[69]](#footnote-69), makes conclusions which contrast significantly with the Western European policymakers and enforcement officers interviewed for this research. Namely, the report states that an “important continuing/emerging trend in illegal trade in 2017”, is “the continued seizures of sturgeon caviar”[[70]](#footnote-70). This points to the contradictory conclusions made when raw seizure data is presented in isolation without consideration of wider context.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Report Title** | **Year Published** | **No. of EU MS reporting international seizures** | **No. of EU MS reporting internal seizures** | **Number of caviar seizures** | | **Caviar as a percentage of International illegal wildlife Seizures in EU** |
| **Quantity** | **Unit used in data** |
| Overview of important international seizures of CITES Listed specimens in the EU Jan - Dec 2012 | 2013 | 23 (data from 17 used) | n/a | 51 | KG | 6% |
| Overview of important seizures in the EU Jan - Dec 2013 | 2014 | 22 (data from 15 used) | n/a | 1800 | Items | 5% |
| 470 | KG  KG |
| Overview of important international seizures in the EU Jan - Dec 2014 | 2015 | 22 (data from 18 used) | n/a | 90 | KG | 5% |
| Overview of important international seizures in the EU Jan - Dec 2015 | 2016 | 20 | n/a | 61 | KG | 2% |
| Overview of important seizures in the EU Jan - Dec 2016 | 2017 | 24 (data from 18 used) | 16 | 109,072 | specimens | 4% |
| 43 | KG |
| Overview of seizures of CITES listed wildlife in the EU Jan - Dec 2017 | 2019 | 28 | 13 | 171 | Seizure records | 3% |

###### Table 4.2 Significant international seizures of caviar in the EU (2012- 2017)

*Data taken from European Commission annual reports (2012 - 2017) on significant international seizures in the EU. The table includes data specific to caviar seizures, and shows the annual variation in number of EU Member States reporting seizures, as well as the variation in how seizures are reported.*

Moreover, there are also discrepancies in reported seizure data within sources. For example, in reporting total EU caviar seizures between 1999 and 2007, Engler and Knapp (2008) use data from the EU-TWIX database[[71]](#footnote-71) and report that 4325kg of caviar was seized in 2000, and 1373kg was seized in 2003 (Engler & Knapp, 2008:29; also see table 4.1). However, in the conclusions made in the report, Engler and Knapp (2008) state that caviar seizures in the EU peaked in 2000, and report an elevated figure of 5359kg, and for 2003 also report a higher figure of 2054kg (Engler & Knapp, 2008:38). For a product generally sold to consumers in 100g tins, this discrepancy in reported figures is significant. Engler & Knapp (2008) state that all reported figures are taken from the EU-TWIX database, and so it is unclear where the discrepancy in this report comes from, or which figures are correct[[72]](#footnote-72).

In relation to more recent seizure data, Harris & Shiraishi (2018) also use data from the EU-TWIX database and report that in 2016 there were 77 seizure records in the EU totalling 60kg of seized caviar (see figure 4.4). On the other hand, the previously aforementioned European Commission report on ‘*significant wildlife seizures in the EU between January and December 2016’* does not provide information on the total number of seizure records, but details caviar seizures for 2016 as 109,072 specimens and an additional 43kg of caviar (see table 4.2). The data presented in this report were gathered from the reports of significant seizures delivered by EU Member States to the European Commission. This report notes that there was “a significant increase in the number of items containing caviar seized in 2016, mainly due to France reporting the seizure of a total of 107,625 cosmetic products containing sturgeon caviar”[[73]](#footnote-73). The use of caviar extract in anti-aging cosmetic producs such as skin-creams and face-masks (see image 4.3) is a growing trend. Enforcement officer Vince explained that UK Customs had been anecdotally informed by the UK Government Animal and Plant Health Agency (APHA), “that more caviar comes into the UK for use in cosmetics than there is to eat”[[74]](#footnote-74). Thus, it is notable that Harris & Shiraishi (2018) choose to exclude cosmetics from their analysis, and focus on seizures of caviar in terms of weight (kg) and number of seizure records, rather than including number of ‘specimens’ seized. As a result, Harris & Shiraishi report that in 2016 there was an overall decrease in illegal caviar trade in the EU; whereas the European Commission report from the same year, states there was a significant increase in the number of seized items containing caviar in 2016.

This discrepancy points to a wider problem with using seizure data to frame narratives about the impact of regulations on illegal caviar trade. Seizure data can be easily manipulated or moulded just by changing the unit or frame of reference used in the report - i.e number of seizure records, number of specimens seized, total weight of caviar seized, or even excluding products such as cosmetics from analysis. For example, Harris & Shiraishi’s (2018) report shows that in 2016 there were 77 records of caviar seizures in the EU - which is actually an increase on the 63 records in 2015; and based on this some may conclude that this shows an increase rather than decrease in illegal caviar trade. However, they choose to emphasise that seizures by weight in 2016 were 60kg, which is a decrease on the 83kg of caviar seized in 2015. If Harris and Shiraishi (2018) had included seizures of cosmetics in their analyses, then the 107,625 cosmetic products seized in France in 2016 could have dramatically influenced their conclusions. Thus, depending on which variable is reported - and which are omitted - seizure data can be skewed, thereby leading to different interpretations and conclusions about the impact of caviar trade regulations on the levels and trends in illegal caviar trade in the EU.



##### Image 4.3: An example of a cosmetic face mask containing caviar extract

*For sale in a UK Department store. (Photo: Author’s Own)*

A final point to be made when deconstructing the seizure data, is that the confiscations “only reflect a part of the illegal trade because most of the trade is unreported or undiscovered” (van Uhm & Siegel, 2016:73). This is particularly pertinent when considering that trade within the European Union is classed as domestic and is therefore less regulated. This in theory means that illegal caviar products can circulate on EU domestic markets without detection. This issue was summed up by Irini who is a national project coordinator for a Romanian NGO:

Now the problem is with this European level, is that we have the common market. Before 2007 we had more controls on the borders and so on. But now it’s an internal market, so it’s not really easy to control [illegal trade][[75]](#footnote-75).

Furthermore, when seizures of caviar originating from within the EU do take place, they are less likely to be reported beyond the Member State, as they are not examples of significant ‘international’ trade that the EU institutions compile reports on. For example, one journalistic report suggests that in Romania alone between 2015 and 2019 520kg of sturgeon and 450kg of caviar was seized by Border Police (Daea, 2019)[[76]](#footnote-76). However I did not find these data reported at the EU level, and I was unable to corroborate these data with any official reports or statistics. Despite this, this example adds further credence to Sigrid’s assertion that EU-TWIX seizure data “doesn’t say enough of the actual picture”, about the impacts of caviar trade regulations on illegal caviar trade dynamics - particularly in the EU where the domestic market further complicates the situation and acts as a proverbial black-hole of information. As a result, Yvar argues that “we do not have a good image of criminal networks involved in wildlife trafficking based upon statistics”[[77]](#footnote-77).

As such, I fervently critique the use of seizure data to justify CITES priority setting and enforcement strategies in the European Union. Not only is the seizure data flawed, but it also does not tell us enough about the impact of the regulations on dynamics of illegal trade and criminal networks in the EU. Moreover, the fixation upon seizure data gives a narrow view about the wider implications of the regulations in the EU. Thus, in the following section I shed light on political-ecological impacts that are overlooked by the dominant political narratives which overwhelmingly and narrowly define the impacts of the regulations in terms of declining caviar seizures.

## 4.4. Revealing hidden political-ecological impacts of the caviar trade regulations in the EU

When asking Oliya what the impacts of the caviar trade regulations had been for the operations of her caviar company, she explained that the export quotas and concomitant shift to aquaculture had been positive for her company, and that “we are a lot more free”[[78]](#footnote-78), than when the company was reliant on sourcing wild-sturgeon from the Caspian Sea. In fact, Oliya vehemently declared that she is “so happy that the wild caviar is finished”[[79]](#footnote-79). So, although CITES Resolution Conf 12.7 created more stringent bureaucratic hurdles for the caviar industry, it also catalysed the emergence and growth of caviar aquaculture; and it seems that the expanded caviar market and the competition this has produced, has benefited many caviar companies. For caviar producers, the impacts of the regulations are felt most greatly in terms of the shift to aquaculture, which is seen in overwhelmingly positive terms.

However, a recent article from the LA Times has pushed back on the narratives that portray the impact of the regulations in a predominantly positive light by selectively focusing on declining seizures and the shift to sturgeon aquaculture. Instead, the article quotes Bulgarian fisherman Ivanov, who remonstrates that “the law was made without considering those most affected by it” (quoted in Hruby, 2020). The situation in Romania is presented similarly, where sturgeon fishermen are described as “a proud people laid low by regulation” (Daea, 2019)[[80]](#footnote-80). Buidling on this, the following analysis begins to outline some of the impacts of the EU caviar trade regulations beyond declining seizures. The discussion deploys my theoretical framework for more-than-human geopolitical ecology, by examining the unequal more-than-human implications of the EU caviar trade regulations. I argue that gaps in the content of these macro-level regulatory frameworks have exacerbated localised inequalities, and disproportionately affected both fishing communities in sturgeon range states, and wild sturgeon populations. In doing so I unsettle the dominant geopolitical narratives explored previously, which overlook and side-line sturgeon fishermen and wild sturgeon. The analysis also highlights hidden dynamics of illegal caviar trade in the EU; thereby adding nuance to existing accounts on the effects of CITES regulations as an environmental-geopolitical intervention.

### 4.4.1 Sturgeon fishing communities

An identified gap in the content of the EU caviar trade regulations, is that they do not include any mechanisms designed to deal with the socio-economic impact of the regulations upon the livelihoods of range state fishing communities. As such, the impact of implementing CITES Resolution Conf 12.7 has been felt particularly forcefully by fishing communities in EU sturgeon range states. The zero export quotas and the emergence of farmed caviar has culminated in a ‘delocalization’ of the caviar industry (Sicuro, 2018), whereby caviar production has proliferated in places that are geographically distant from natural sturgeon habitats, and where it is economically competitive for caviar producers to locate their operations. Irini explained that the possibility of caviar aquaculture emerging and benefitting the range state fishing communities is limited, because “if you want to produce caviar from sturgeons you need money; it takes so long; and it’s not quite an easy technology”[[81]](#footnote-81). Unfortunately, these communities are poor, with over 90% of the fishermen in the Danube delta living in near-poverty (Daea, 2019). Although the fishermen have specialised skills in catching sturgeon, these are not transferable to raising sturgeon in captivity for caviar production. Moreover, tightened government restrictions on fishing Black Sea shad (Daea, 2019), has further limited opportunities for sturgeon fishermen to diversify their fishing practices. As a result, many sturgeon fishermen in the EU have lost their livelihoods and struggled to find alternative employment, causing many to choose to work abroad (Luca *et al.*, 2020).

More specifically, in Romania the zero export quotas have been compounded by a total sturgeon fishing ban. NGO co-ordinator Juliani, explained that “in 2006 when the ban was imposed there were no complementary measures for sturgeon fishermen”, and “now it’s 2018 and we are still not able to find social programmes to have these compensatory measures for them”[[82]](#footnote-82). Naturally, she explained that the Romanian fishery associations representing the sturgeon fishermen have been “so angry!”[[83]](#footnote-83) with the impact of the caviar trade regulations, and have tended to direct their anger at the NGOs who are now attempting to support the fishermen. Thus far, discussions on alternative livelihoods have considered eco-tourism and agro-tourism in the Danube Delta via events such as fish festivals, tourist homestays, and fishing trips[[84]](#footnote-84); although these ideas have been met with hostility from some fishermen[[85]](#footnote-85). Other ideas have included building a cannery business to package and sell locally-caught fish species, or even a sturgeon aquaculture enterprise. However, Irini admitted that the sturgeon aquaculture facility looked increasingly unlikely, as “the land was good, but it’s in a place where they cannot control it… if someone came to steal the fish, they cannot make sure this will not happen”[[86]](#footnote-86). Moreover, Irini recognised that such enterprises would only provide employment for a limited number of fishermen out of the many affected fishing communities the NGOs were working in. Thus, whilst NGOs are now beginning to engage with fishing communities to find alternative livelihood opportunities, for over a decade the fishermen have been overlooked, with limited socio-economic alternatives to sturgeon fishing. As a result, representatives of NGOs working on the ground in Romania explained how the criminalisation of livelihoods via CITES Resolution Conf 12.7 and its implementation in the EU, has contributed to the further economic marginalisation of sturgeon fishing communities.

Moreover, it was noted that due to the imposed economic insecurity brought about by the caviar trade regulations and fishing bans, some fishermen have felt compelled to continue to catch sturgeon. Some have gone as far as to say that the fishing ban was “a recipe for poaching to flourish” (Luca *et al.*, 2020) in the Romanian Danube Delta. Irini explained that those fishermen who have engaged with the NGOs “say they are poaching because they need money, they have to survive”[[87]](#footnote-87). For some, the continued sturgeon fishing has been opportunistic. Romanian caviar producer, Danut, explained that when fishing for sturgeon “it’s a lottery. You catch a Beluga weighing 200kilos, with 30kilos of caviar, and you don’t have to work for a whole year. For those 90% of fishermen that are poor, they’re still looking for that lottery ticket”[[88]](#footnote-88).Therefore, when fishermen catch sturgeon as accidental by-catch, this is seen as their ‘lottery ticket’ and more often than not, they do not release the sturgeon, despite the legal mandate to do so (Daea, 2019). It was also said that for others, the continuation of poaching represents a deliberate act of resistance: of making a stand against the criminalisation of their livelihoods and the lack of compensation for their communities[[89]](#footnote-89). Rose explained that “what shows from the work we have done is that we know those people who know how to catch the sturgeon - and it’s not simple, it requires knowledge and tools - they continue to apply this knowledge. The temptation is big, and these are poor people, and there is still a market for it”[[90]](#footnote-90).

Furthermore, another overlooked impact of the regulations on fishing communities, has been the unequal impacts of enforcing CITES Resolution Conf 12.7 and the related regulations. Enforcement operations have placed fishing communities at the mercy of enforcement authorities that can be overly heavy-handed and/or corrupt. Irini explained that in Romania there are up to 7 enforcement bodies who can undertake fisheries controls and inspections including ANPA (the national agency for fisheries and aquaculture), the Danube Delta Police, the Border Police, and the national environmental guard. Irini recounted how there had been reports of enforcement officials abusing their position of power when undertaking control missions in these fishing communities. These ‘abuses’ included seizing lawful tools and legally caught fish, and then selling the commodities in other communities, and generally treating the fishermen “like they already do something illegal, even if it’s not proven”[[91]](#footnote-91). This has further entrenched the hostility, disdain, and mistrust many fishermen express towards authorities, due to being subject to long histories of exploitation at the hands of corrupt authorities (Luca *et al.*, 2020). Irini outlined that some fishing communities have explained how in recent years the enforcement authorities “are a lot more polite”[[92]](#footnote-92), but overall the relationship between sturgeon fishermen and enforcement officials in Romania is complex, contradictory, and ambivalent.

Moreover, it was suggested that these contradictory relationships have emerged in part because some fishermen and the organised poaching networks they are part of, have made arrangements with enforcement officials whereby poaching is informally permitted, on the condition that enforcement officials benefit materially from the profit of these poaching endeavours. Romanian caviar producer Danut, stressed that the fishing bans and regulations have been ignored “in complicity with those who should control it”[[93]](#footnote-93), and Juliani similarly declared that “in the poaching a lot of authorities are involved”[[94]](#footnote-94). As such, Rose concluded that “there are real enforcement issues. It’s a cultural issue and everybody is poaching whenever it is possible, especially in the [Danube] delta”[[95]](#footnote-95). Arguably, it is unlikely that everybody is poaching, but what is clear, is that many fishermen increasingly exist in an insecure and liminal socio-economic situation as a result of the EU caviar trade regulations. On the one hand, they face being criminalised and prosecuted for pursuing illegal fishing activities - yet they have few economic alternatives. On the other hand, they are sometimes pushed, encouraged, or willingly pursue sturgeon poaching in complicity with the very authorities tasked with enforcing the regulations. In sum, the prevailing sense was that because of the regulations and fishing bans, sturgeon fishermen have increasingly limited employment opportunities, which has led to acute economic insecurity and may push them into criminality.

Observers have therefore made the conclusion that the regulations have had some ironic impacts, given that in the Danube Delta “the poaching is bigger than ever”[[96]](#footnote-96). However, these poaching dynamics are not necessarily reflected in the EU-level seizure data, primarily because, “the problem now is that a lot of poaching is not seized”[[97]](#footnote-97). The purported involvement of corrupt authorities in facilitating illegal trade, is one reason which can explain why poached sturgeon and caviar may not be seized. A further point to consider was put forward by ex-enforcement officer Michael who suggested that although he was “sure that the poaching must continue, one presumes that the majority of illegally harvested product is used domestically now”[[98]](#footnote-98), and therefore not subject to inspection at international borders or likely to be seized. This again reinforces the unreliability of using only caviar seizure data to tell a story about the impacts of the caviar trade regulations, particularly as the seizure data is not reflective of sturgeon poaching dynamics in the EU, and a significant proportion of illegal trade is thought to be missed, ignored, or covered up.

Thus, the impact of caviar trade regulations in the EU have been felt particularly acutely by sturgeon fishing communities, who do not feature in the dominant narratives focusing solely on the purported positive impacts of the regulations in the EU. Caviar trade regulations have impacted economic security in fishing communities; and it is suggested that in some cases the economic insecurity has pushed fishermen into crime in order to survive. Moreover, fishing communities have been uniquely impacted by the enforcement controls that are mandated by the regulations. The enforcement operations have resulted in the emergence of complex sturgeon poaching economies that are simultaneously disrupted and enabled by the activities of enforcement authorities. Meanwhile, the caviar industry has left sturgeon fishermen behind and flourished as a result of the exponential growth of caviar aquaculture enterprises. The successes of caviar aquaculture, and the demise of local fishing industries are illustrative of the inequalities that have been entrenched by gaps in the caviar trade regulations. These dynamics are hidden by the narratives that use seizure data to depict a situation of declining criminality and illegal caviar trade in the EU; whilst overlooking the socio-economic implications of caviar trade regulations on sturgeon fishing communities, and what this means for poaching dynamics.

### 4.4.2 Wild sturgeon

Finally, despite the implementation of the caviar trade regulations, there is a growing recognition that wild sturgeon populations in the EU are under as much pressure as ever. The recently adopted Pan European Action Plan for Sturgeon cements this view, stating that the “conservation status of all sturgeon species in Europe has become highly critical without showing signs of recovery, indicating that previous action has not been successful” (Friedrich *et al.*, 2018: 6). The plan notes that alongside overexploitation of sturgeon destruction of key habitats, blocking of migration routes, and pollution are key factors driving the on-going decline of sturgeon in Europe. Arguably the EU caviar trade regulations focus solely on trade matters, but they shouldn’t exist in a depoliticized vacuum. Rather, it is imperative to situate these regulations in the broader environmental context and ecologies of sturgeon. This adds necessary nuance and troubles the assumptions inbuilt into the dominant policy narratives that lower seizures of caviar equates to lower criminality and poaching, and therefore an easing of pressure upon wild sturgeon populations. However previous discussion demonstrates that lower seizures do not directly correspond with lower criminality; and it is therefore also misguided to assume that lower seizures correspond with an easing of pressure on wild sturgeon.

On the contrary, the increased pressure on wild sturgeon can be explained by the fact that sturgeon numbers are said to be significantly reduced in the wild[[99]](#footnote-99). Thus, the zero export quotas and fishing bans alone have not been sufficient to ease pressure on sturgeon populations in Europe. Instead, the caviar trade regulations need to be implemented alongside other conservation measures. Although there have been some conservation initiatives, mainly led by NGOs, these have not been widespread and have not had the necessary time to enable populations of sturgeon to recover[[100]](#footnote-100). Moreover, the pressure has been compounded by the fact that some sturgeon fishermen have continued to catch sturgeon illegally. Rose acknowledged that when NGOs describe poaching rates as “very high”, this might “sound like a contradiction”, particularly given that poaching was much higher prior to the implementation of the caviar trade regulations and has subsequently reduced. However, she exemplified that the levels of poaching the NGOs are referring to is:

Poaching that has happened since the sturgeon [fishing] bans were put in place. A lot more happened before, but we are talking about poaching post-bans. This post-ban poaching combined with other pressures has made populations dwindle even further. So you could say that poaching pressure on each individual is increasing. Overall there is less to catch [...] true the catch rate is going down, but people are still trying. If we think about it in terms of related to the number of sturgeon left, the pressure is definitely higher[[101]](#footnote-101).

Thus, despite the implementation of the caviar trade regulations in the EU, the relative pressure on sturgeon in the wild is said to be at its highest levels to date: because there are fewer fish in the wild; conservation activities are sporadic; and an ironic impact of the regulations has been to push some fishermen into poaching. This information adds further nuance to the declining seizures: the existence of fewer fish in the wild means that smaller numbers of sturgeon can be poached, and subsequently fewer seizures of caviar and sturgeon by weight should be expected. This discussion has therefore illustrated that declining seizures should not be conflated with lessening poaching pressure on wild sturgeon, or for that matter an assumption that in-situ sturgeon conservation is widely practiced and working effectively in the EU.

In reality, there have been significant difficulties in establishing sustained sturgeon conservation initiatives to complement fishing bans and zero export quotas. Admittedly, the CITES regulations are predicated first and foremost upon facilitating legal and sustainable international trade in sturgeon and caviar, with conservation of the species being a secondary imperative. However, an overlooked impact of the implementation of CITES Resolution Conf 12.7 in the EU, is the loophole it has provided for the caviar industry to avoid taking a significant role in sturgeon conservation. By shifting all caviar production and trade to captive-bred sources, the caviar trade regulations have removed any need for the caviar industry to be actively involved in conservation, as the industry is no longer reliant on wild sturgeon as the primary source of caviar. NGO representative Irini critiqued the ignorance of the caviar industry arguing that “they should be aware of their responsibility”[[102]](#footnote-102) to be involved in sturgeon conservation, given that they are primarily culpable for driving much of the over-exploitation of wild sturgeon populations. However ex-enforcement officer Michael was more forceful in his suggestion that the caviar industry were not ignorant, but rather that many companies were wilfully avoiding their responsibility to wild sturgeon, and he concluded that this was industrial-scale “hypocrisy”[[103]](#footnote-103). Michael explained that he was “disappointed” with the caviar industry, as over the years the industry previously engaged in:

A lot of lobbying, a lot of encouragement, there was provision of advice and information, but then nobody put their hand in their pocket. You know, all the companies for example knew the situation in the Caspian and elsewhere [...] They knew that governments either could not afford or were not going to allocate money for example to just buying a decent outboard motor for a patrol vessel or even buying a good patrol vessel. So these companies could have clubbed together and bought something like that. If you look at other examples in conservation, the number of companies that are contributing to protecting the environment, or conservation, or donating money to WWF [...] I just can’t remember ever seeing anything like that with the caviar industry.[[104]](#footnote-104)

Indeed, there was a sense amongst NGO representatives in particular, that the current regulatory system in the EU is set up in a way that unequally favours the caviar industry over wild sturgeon (and fishermen). NGO project manager Sigrid, expressed dismay that the CITES Management Authorities in EU Member States sometimes appear to actively protect the caviar industry over sturgeon: “What I found so strange, is that the CITES Management Authority already defends their industry. Actually it’s not their [CITES Management Authority] task I would say [...] It should be in their interest to make… I dunno, to protect the species and not their [caviar] industry”[[105]](#footnote-105). As such, there was a sense amongst more vocal NGO representatives, that the plight of wild sturgeon in the EU was perhaps increasingly overlooked since the implementation of CITES Resolution Conf 12.7; and that the attention of policymakers was more squarely focused on facilitating sustainable farmed caviar production. This oversight is compounded by the dominant policy narratives which stabilise the idea that the EU caviar trade regulations have solved a lot of problems related to illegal caviar trade.

Thus, an overlooked impact of the implementation of CITES Resolution Conf 12.7 in the EU has been the relative sidelining of attention given to the conservation of wild sturgeon, in favour of establishing the European farmed caviar industry. The lack of buy-in or support from the caviar industry in conservation initiatives has made sturgeon conservation in the EU more difficult, thereby doing little to alleviate the mounting environmental pressure on wild sturgeon populations. The problem of conserving wild sturgeon populations in the EU has even prompted debates that question if sturgeon conservation is a “challenge or burden”?[[106]](#footnote-106). This demonstrates a potentially troubling narrative that is emerging, whereby sturgeon are reframed as a ‘burden’ to conserve. The underlying question behind the ‘burden’ narrative, is whether there is value in protecting the species in the wild. This line of discussion can potentially be used by the caviar industry to verify their lack of involvement in sturgeon conservation. Moreover, the rhetorical power of this kind of debate can serve to reinforce the ecological insecurity of wild sturgeon, by discouraging further investment -both economic and moral- in sturgeon conservation, because it may prove burdensome.

Thus, this section has demonstrated that the implementation of CITES Resolution Conf 12.7 in the EU has had hidden political-ecological impacts that complicate the outwardly positive picture painted by declining seizures of contraband caviar in the EU. By looking to the broader impact of the regulations, this section has added more nuance to the narratives around declining seizures. I demonstrate that declining seizures need to be contextualised in the reality of depleted sturgeon populations; and also that seizures do not act as a proxy for declining criminality, and cannot account for poaching dynamics in EU sturgeon range states. Moreover, the implementation of caviar trade regulations has had significant political-ecological impacts upon sturgeon fishermen and wild sturgeon: groups that have been overlooked by the narratives that focus on the impacts of the EU caviar trade regulations in terms of declining seizures and the benefits of a transformed caviar industry built on aquaculture.

## 4.5. Conclusion

This chapter introduces the EU caviar trade regulations, and discusses how declining seizures of caviar in the EU have been widely attributed to the implementation of EU caviar policies. My analysis deconstructs and repoliticizes the seizure data. It is necessary to do so, because policymakers and enforcement officials in Western Europe have largely presented seizure data in an uncritical and decontextualized manner, to frame the dominant narratives regarding the impact of implementing caviar trade regulations in the EU. Whilst recognising that seizures of caviar have dramatically declined in the EU, I argue that raw seizure data cannot be taken at face value due to a number of flaws inherent to these data. These data should therefore not be used as a proxy to make conclusions about dynamics of illegal caviar trade and associated criminality. Instead, I argue that it is necessary to recontextualize and thereby repoliticize these seizure data by drawing attention to the broader, yet overlooked impacts of caviar trade regulations in the EU. I argue that the powerful political narratives that fixate on declining seizures of caviar, overlook the wider impacts of the regulations in the EU. By bringing these hidden political-ecological impacts into conversation with caviar seizure data, I complicate the narrative that the impacts of caviar trade regulations have been an overwhelming ‘success’ in the EU, and simultaneously point to some of the holes in seizure data.

In highlighting some of the hidden implications of the caviar trade regulations in the EU, my analysis builds upon the theoretical framework for more-than-human geopolitical ecology. Namely, I demonstrate how the caviar trade regulations constitute an example of a geopolitical-environmental policy intervention that has entrenched inequalities in the EU. The caviar trade regulations have been stabilised as a positive policy intervention and geopolitical-ecological discourse in the EU, by dominant narratives that foreground declining contraband caviar seizures whilst simultaneously overlooking the impact of the regulations upon sturgeon fishing communities and wild sturgeon. I examine how the regulatory frameworks have criminalised the livelihoods of sturgeon fishermen without providing compensation or alternative sources of income. I show how this gap in the regulatory frameworks has increased economic insecurity for sturgeon fishing communities, and pushed some fishermen into illegal sturgeon fishing. Moreover, I consider how despite the ban on wild sturgeon fishing, the caviar trade regulations have done little to ameliorate the ecological insecurity of sturgeon, and have actually provided a loophole for the caviar industry to disengage with sturgeon conservation efforts.

As such, this chapter illustrates that despite declining seizures of illegal caviar in the EU, caviar trade regulations have entrenched “multispecies forms of injustice” (Margulies & Karanth, 2018: 162), and ironically may have catalysed sturgeon crimes. Moreover, I demonstrate that seizure data in isolation cannot account for the nuanced politics surrounding poaching and illegal caviar trade dynamics in EU sturgeon range states. Underwriting this discussion is an acknowledgement that gaps and grey areas in the regulatory frameworks have heightened the unequal impact of the regulations. In this regard, the discussion in this chapter contributes to the overarching argument of the thesis: that the regulations have gaps and grey areas, which have produced unexpected geopolitical-ecological outcomes. In this case, I demonstrate that the poaching dynamics in EU sturgeon range states can be explained in part, by a gap in the content of the regulations. Specifically, that the regulations do not include mechanisms to counter the negative socio-economic impacts of implementing zero export quotas and fishing bans in sturgeon range states.

Ultimately, the chapter reinforces the argument that seizure data alone does not give an adequate account of the nuanced impacts and hidden political-ecologies that are intrinsic to the implementation of caviar trade regulations in the European Union. Arguably seizure data is an important dimension of the story. But these data must not be divorced from the wider geopolitical-ecological context in which EU caviar trade regulations are situated; otherwise, this may result in misguided policy and enforcement actions. Moreover, the discussion in this chapter has highlighted a pertinent disconnect that requires further interrogation: namely, sturgeon poaching and illegal caviar trade is still happening in the EU, but not reflected in seizures. In the following chapter I go some way in explaining this disconnect, by theorising the caviar trade in the EU as a ‘grey market’, and illustrating how inconsistencies in caviar trade regulations enable illegal caviar to enter the European market undetected.



##### Image 02: Un-labeled jars of fresh caviar, prior to being repackaged into smaller caviar tins

Source: Author’s Photo

# Chapter 5: Caviar Matter(s): Materiality and the Caviar Grey Market

## 5.0 Introduction

Caviar as a product is materially complex. It is extremely difficult to determine based upon the human sensory registers of touch, taste, and smell whether caviar is legal or illegal – i.e. captive bred or wild caught. An example of caviar being sold in Bucharest airport deftly exemplifies the material indecipherability of caviar. The tins of caviar in question were labelled as coming from a wild beluga sturgeon, harvested in Romania. However, the zero export quotas and fishing bans that are in place would make such caviar illegal. NGO representatives, enforcement officers and a caviar producer alike recounted this situation to me. They all explained that they had challenged the retailers on the legality of the caviar being sold. The enforcement officers explained that they later discovered that the labels on the tins were changed to read *captive-bred* Beluga caviar, harvested in Romania. But the story does not end there. According to a CITES representative I interviewed, at the time there were no officially registered captive breeding facilities in Romania capable of producing Beluga caviar[[107]](#footnote-107). Moreover, the caviar producer who had also noticed this shape-shifting caviar, emphasised that their facility was the only facility in Romania with Beluga sturgeon, but that they were not registered to produce caviar yet given that their sturgeon were not at producing age. Thus, this inexplicable caviar sat on the shelves at Bucharest airport: now ostensibly legal, and labelled according to CITES regulations; but at the same time suspected to be illegal. However the caviar defied any attempts to identify it.

The inability to establish the material provenance of a caviar sample is widespread, and characterises the experience of many individuals, including: law enforcement officials, NGO representatives, academics and even caviar industry professionals - all who encounter caviar on a frequent basis. Yvar, a researcher who has worked extensively on illegal caviar trade explained that “during my fieldwork I consumed *a lot* of caviar, but I cannot distinguish or see the difference between wild and captive bred, for me it’s too difficult”[[108]](#footnote-108). On the contrary, a minority of individuals are adamant that “the difference between wild and farmed [caviar] you can see directly”[[109]](#footnote-109) and also taste. This chapter illustrates that determining the material essence of caviar is contentious.

This chapter explains: the complex materiality of caviar; why it is so difficult to make the physical properties of caviar legible; and how caviar defies straightforward identification. Moreover, I argue that it is the ‘unknowable’ material properties of caviar that enable new forms of illegal caviar trade to emerge. I show that these emergent illicit practices serve to establish the EU caviar market as a ‘grey market’ (Mackenzie and Yates, 2017), which intertwines the activities of the legal and illegal caviar trades into one market. Using Barua's (2014) distinction between the micropolitical and the macropolitical, this chapter demonstrates that the micropolitical “properties, energies, potentialities, affects and affordances” (Sundberg, 2011:322) of even a single caviar egg, have macropolitical impacts: in this case playing a formative role in establishing an international grey caviar market.

The arguments I make in this chapter, foreground caviar as part of the more-than-human assemblage of actors and forces that co-produce the ‘grey’ caviar market. This line of argument brings together and directly builds upon work on the (geo)political-ecologies of matter discussed in chapter two (Bennett, 2010; Rossiter, 2011; Barua, 2014; Mostafanezhad and Evrard, 2018; Banoub, 2019). Such work conceptualises how nonhuman material things are “co-constitutive of their sites, geographies and spaces” (Tolia-Kelly, 2013:154). To this extent, I deploy the framework of more-than-human geopolitical ecology to position caviar as a geopolitical actor that shapes the broader implications of the caviar trade regulations in the EU. I examine how caviar as a material, is “live, active, agentic and powerful” (ibid); and I explain how the material properties of caviar disrupt the efforts made by the EU to control the ecologies of illegal caviar trade. In sum, I ask in line with Maan Barua: how would our understanding of the *geo*political-ecology of caviar trade regulations in the EU “unfold if we seriously considered the role of materials in mediating social and ecological outcomes?” (2014:1463).

The main argument of the thesis is that regulations designed to prevent illegal caviar trade in the European Union have gaps and grey areas that have not totally prevented illegal trade, and have instead produced (unintended) geopolitical-ecological impacts. In line with this, I illustrate in this chapter how allowing one form of trade in caviar, but not another, creates regulatory loopholes for illicit activity. I explain how these emergent forms of illicit caviar trade employ the complex material properties of caviar in order to go undetected. As such, there are macropolitical impacts, whereby a grey caviar market has been brought into being in the EU, via the interplay of loopholes in regulations and the ‘unknowable’ material properties of caviar. In sum, the chapter takes seriously the vital material properties of caviar in order to theorise and explain the emergence of a caviar grey market, whilst positioning this as part of the geopolitical-ecological implications of the EU caviar trade regulations.

In section 5.1 I first examine the complex materiality of caviar and develop the argument that caviar is materially ‘unknowable’. In section 5.2 I examine how the ‘unknowable’ material properties of caviar have been pivotal in producing new forms of illicit caviar trade. I argue that these illicit activities serve to enmesh the legal caviar market with the black market in unexpected ways, and ultimately establish a grey caviar market. Finally, in section 5.3 I discuss the implications of the relationship between caviar materiality and the grey caviar market, by conceptualising of caviar as an actor in the geopolitical-ecology of the caviar trade in the EU.

## 5.1 Caviar Materiality

Materiality is the quality of being composed of matter; and a material quality of a thing. The ‘matter’ of a thing refers to both living materials and non-living material. Whilst innumerable forms of matter are central to the core concerns of political ecology, for the most-part political ecologists have rendered “matter inert, reducing it to an inanimate substrate moulded and acted upon by social collectives from without” (Barua, 2014: 1464). However as discussed in chapter two, a burgeoning body of scholarship in both political ecology and to a lesser extent critical geopolitics (Bennett, 2010; Rossiter, 2011; Sundberg, 2011; Barua, 2014; Du Plessis, 2018; Mostafanezhad and Evrard, 2018; Banoub, 2019), has enlivened matter and the materiality of non-humans, to study how materials actively shape relations between humans and non-humans in increasingly political ways. In line with this, I argue that materials are (geo)political; and any account of the geopolitical-ecology of the caviar trade within the EU, which does not engage with the ‘vibrant potential’ (Barua, 2014: 1464) and material nature of caviar itself, would be thoroughly lacking.

Thus, this chapter responds to Tolia-Kelly’s urge for scholars to “embrace the call of matter to think politically and beyond the surface” (2012: 153). Those investigating illegal caviar trade in the EU, describe how “whenever we have scratched the surface a little, some strange things appear”[[110]](#footnote-110). I illustrate how scratching beneath the surface of caviar to engage with its materiality – it’s properties, potentialities and energies – is imperative in order to explain these ‘strange things’; and examine how despite the regulatory frameworks, illicit trade in caviar continues to take place in the EU. In what follows, I explain why caviar is materially complex, and ultimately ‘unknowable’. I argue that the ‘unknowability’ of caviar has pertinent implications for both managing illicit trade and shaping the mechanisms by which illicit trade takes place.

### 5.1.1 Visually distinguishing caviar

Through my fieldwork experience I have now seen a lot of caviar and come to appreciate the visual variation that exists between the caviar produced by different species of sturgeon. Given that there are 27 species of sturgeon and paddlefish it is unsurprising that different types of caviar exist, and that they look visually different. Caviar ranges in terms of size of the eggs, with Beluga (*Huso Huso*) producing pea-sized eggs, and Sterlet (*Acipenser Ruthenus*) producing tiny grains of caviar. Caviar also ranges visually in terms of colour of the eggs. Beluga (*Huso Huso*) produce the famed ‘Black Pearls’, which range from silvery-grey to deep black shades; Oscietra caviar taken from Russian sturgeon (*Acipenser Gueldenstaedtii*) ranges from hues of grey to brown, to prized golden shades; and I even came across ‘white pearls’ of caviar, which are produced by albino Sterlet sturgeon (*Acipenser Ruthenus*) whose eggs lack pigment.

The production process can also make caviar appear visually different. Traditional high-quality forms of caviar are known as ‘Malossol’ which refers to the low salt content used to produce this caviar, resulting in eggs that are famed for their desirable texture and ‘pop’ on the roof of the mouth. However, the low salt content makes this caviar particularly susceptible to perishing as a result of oxidation, which limits the shelf life and can affect the materiality of the caviar in terms of taste, texture and appearance. As such, caviar that is repackaged is more likely to be materially inferior, as explained by caviar producer Qerene who described how “a caviar changes... It becomes more mature and you get more oxidation in it, and then the taste is not so good anymore… Caviar from 2 weeks old is completely different than caviar from 10 months old… I think one of the main things is that caviar is not repackaged, so the eggs will not be damaged and there is less oxidation. So the view of the eggs is nicer”[[111]](#footnote-111). Aside from the traditional ‘Malossol’ production method, caviar can also be pressed into a paste of mixed-grade weak or broken eggs; or it can be heat treated and pasteurised to extend the shelf-life, but this heat treatment impacts the texture and flavour of the eggs making them much firmer than ‘Malossol’ grade caviars.

Thus, it is possible to fairly easily distinguish between different types of caviar according to the visual differences between species and/or production method. However, attempting to discern the geographic origin or whether the caviar is farmed or wild caught is more complex. It is not possible to determine origin via only visual methods, but the origin is the vital information needed to establish the legality of caviar. Therefore, I argue that beyond visually determining the species or production method, caviar is to a significant extent ‘unknowable’ and indecipherable.

Some claim to be able to tell the difference between wild caught or farmed caviar according to taste: “With the taste you can tell… I cannot forget this taste. The taste of wild caviar is more heavy [than farmed]”[[112]](#footnote-112). However, the ability to taste a difference between farmed and wild caviar is disputed by others. Regardless, using taste to establish provenance is not viewed as a fool-proof enforcement mechanism (although Oliya claimed that her company were routinely contacted by customs to verify whether seized caviar products were wild, and that they used taste to establish this). As such, enforcement officials are reliant upon other methods to determine and make ‘knowable’ the legal status of caviar. However, the ease with which caviar can be made ‘knowable’ is complicated by the material properties of the caviar. Indeed, establishing the provenance of caviar requires the use of complex scientific testing methods.

### 5.1.2 Making caviar knowable

Caviar defies straightforward material identification. Each grain of caviar hides information about its provenance. Getting to the material essence of the eggs and accessing this hidden information is the process that transforms the caviar from unknowable to knowable. Encoded in each individual ‘black pearl’ of caviar is the genetic information about the species of sturgeon the caviar was harvested from, which can be verified using DNA testing methods. However, the eggs contain other hidden information that typically proves more important from a law enforcement perspective. This information relates to where the caviar has come from *geographically*.

The geographic provenance of caviar is typically required to determine the (il)legality of a product. To obtain details of the geographic origin of caviar, a stable isotope ratio analysis (SIRA) method is used. This method breaks the caviar down into its atoms in order to analyse the following elements: carbon, oxygen, hydrogen, nitrogen and sulphur. Tom, the Operations Manager of a laboratory that conducts SIRA testing of caviar, explained why the caviar is broken down into its constituent elements and how this enables identification of the geographical origin of the sample:

So when we are looking at caviar, you’re looking at the water that the fish has drunk, as well as the proteins that make up the actual eggs themselves: that’s come from things like the plants, or whatever it is down the food chain. And you’re looking at the nitrogen and things that make up the proteins that go in there, and the sulphur that makes up the proteins that go in there [the caviar]... And because those elements vary due to geographic processes, you can tell the difference between caviar from different places.[[113]](#footnote-113)

Tom evidenced this by describing a case where the laboratory proved (and their evidence was used in court) that a caviar farm in Germany were ‘oversupplying’ their stocks with wild-caught caviar originating from the Caspian Sea, but selling the caviar as farmed German product. Using the reference data that the laboratory has amassed, they were able to demonstrate that the seized caviar sample was materially different in its chemical composition from farmed caviar originating in Germany, but very similar in chemical composition to the references they had of caviar from the Caspian Sea. Therefore, they concluded that the caviar was taken from wild sturgeon in the Caspian Sea region. Put simply, “it’s a little bit of ‘you are what you eat’”[[114]](#footnote-114). The caviar is chemically composed of the water that the sturgeon absorbed and the organic matter that the sturgeon consumed during its lifespan, and this differs across geographies. However, without getting to the root of the hidden molecular properties of the caviar, it would have been impossible to establish the origin of the illicit caviar.

The explanation of the SIRA method elucidates the complex material nature of caviar, and why it is often unknowable. The SIRA test breaks the caviar down into chemical information that reveals the past liveliness and behaviours of the sturgeon, in terms of what they ate and where. This information is not accessible or legible without laboratory interventions to make sense of the properties of the caviar. Vitalist traditions in geography emphasise the need to recognise the material liveliness and agency of nonhuman beings in order to make sense of social phenomena and ‘worlds’. They stress that being attuned to nonhuman agency and materiality illustrates that sometimes “worlds are sensed and not seen” (Greenhough, 2016:43). In the case of caviar, its material properties are sensed rather than seen in a straightforward sense. The properties are made knowable through an assemblage of actors, technologies, and processes that combine to exceed the capacity of human visibility alone.

Moreover, vitalist geographers argue that there is a need to take “seriously how worlds are formed through the constant interplay of life and matter” (Greenhough, 2016:51). This is true in the case of caviar, where the past liveliness of sturgeon and their energies as living beings, is interwoven into the matter of the caviar. The past energy of sturgeon is re-enlivened by the interplay that occurs when humans and technologies intervene at the molecular level of caviar, in order to attempt to make sense of its physical properties. Accessing this liveliness is the key to bringing the worlds of legal and illegal caviar trade into being. However in the case of caviar, part of the complex interplay between life and matter is that caviar often exceeds human efforts to make its material properties legible. A result of this is that the grey caviar market is a world brought into being by the complex materiality of caviar, and the constant interplay of life and matter.

In sum, SIRA testing methods can make the unknowable geographical properties of caviar knowable. These tests unearth the ‘liveliness’ of the caviar that is hidden in each egg, and forcefully demonstrate both the complex materiality of the caviar, but also demonstrate how vital it is for humans to intervene at a material level in order to make caviar ‘known’.

However, despite the evidence that suggests it is imperative to get to the molecular essence of caviar in order to make it truly knowable, the deployment of these testing methods for enforcement is far from routine. Tom explained that the laboratory rarely tests caviar - more frequently carrying out tests on timber and other food products - and that their involvement in testing caviar has been based upon the infrequent request of German customs. UK enforcement officials cited “manpower and cost”[[115]](#footnote-115) as preventing them from engaging in random-testing of caviar shipments, explaining that “there’s a big cost element and we usually only do testing if we need back-up for some reason, and if there is any reason we should be testing it. We don’t test indiscriminately”[[116]](#footnote-116). Similarly, when asking Belgian customs if they ever tested their caviar shipments to distinguish between legal and illegal product, they said “No… It’s too expensive. And it’s not necessary”[[117]](#footnote-117). Belgian Customs explained that if caviar shipments appear to have the correct labels and CITES documentation they would never test it, and if it is unmarked caviar then it is simply seized and destroyed without testing. This stance greatly worried Joseph, CEO of the testing laboratory, who exclaimed: “You’ve got to look at the paperwork and what that means and its implications, *and* also the product itself! You simply cannot *not* do some analysis”[[118]](#footnote-118).

The lack of widespread testing of caviar shipments reflects a general faith in the CITES paperwork system, which in turn produces a potential loophole for illicit activities. Indeed, NGOs undertaking market surveys of caviar and sturgeon products for sale across European markets, have demonstrated the need for conducting testing to verify that materially caviar *is* what it says it is on the tin[[119]](#footnote-119). Coordinated market surveys across different national NGO offices (Romania, Bulgaria, Ukraine and Serbia) have involved buying sturgeon meat and caviar from markets and testing the tins “to see if the species is what they say it is, and if they are from aquaculture or not”[[120]](#footnote-120). The results have demonstrated that poached meat and caviar is being sold as farmed product, and also that “many of the labels are not according to the CITES recommendations”[[121]](#footnote-121). This points to a gap in enforcement and a need for more widespread SIRA testing of caviar, or illegal trade can continue undetected.

But at the same time, there have been incidences of unexpected and problematic results that have emerged from the testing of caviar obtained during NGO market surveys. NGO Project Manager Sigrid explained a situation that she called a “major problem”, whereby results from the market survey identified a sample of caviar produced by an aquaculture facility in Ukraine, as illegally sourced from the Black Sea region. Sigrid explained that following these results:

Our colleagues from Ukraine said: ‘but we don’t believe it that this is really poached caviar. We know the company. We really trust the company.’ And so they went there again to this aquaculture facility and found that they are actually feeding their sturgeons with wild-caught fish from the Black Sea. And this could be a reason why the isotope ratio looks like the caviar was actually from wild sturgeons.[[122]](#footnote-122)

This is a forceful demonstration of the micropolitical impact of the “constant interplay of life and matter” (Greenhough, 2016:51), whereby the lives of sturgeon directly impacts the properties of caviar, and this can have unexpected political consequences.

The above example thus casts doubt over the efficacy of the SIRA testing method in making caviar truly knowable. UK Customs Officer Vince also expressed his concerns about the tests, saying “I’m not sure the stable isotopes is good enough to see where the caviar came from, whether it’s from the Caspian or wherever. I’m not sure that technology is in place”[[123]](#footnote-123). The example therefore disrupts the notion that the material origin of caviar can be made totally legible. Despite the human interventions designed to make the physical properties of caviar knowable, ultimately the complex material nature of caviar obfuscates testing mechanisms, and defies straightforward identification. As it stands, there does not exist a totally fool-proof way of establishing beyond doubt the material origin of a sample of caviar. Thus, in some instances caviar remains materially unknowable. This ‘unknowability’ points to the vitality of caviar as a material, and demonstrates that “materials are vibrant: they are not infinitely malleable, they retain certain independence from humans, and they influence outcomes through connections, disruptions, and flows” (Bennett, 2010 in Barua, 2014: 1464). The caviar possesses some “properties, energies, potentialities, affects and affordances” (Sundberg, 2011: 322) that exceed human efforts to make the material properties of caviar legible.

Engaging seriously with caviar as a material has revealed that caviar possesses complex physical properties that even the latest technological developments cannot always decipher or make knowable. This in turn produces gaps in the enforcement chain where caviar is not tested, or the results are unclear. Thus, caviar exceeds human efforts to make its material provenance legible – and this has macropolitical impacts. I argue that the unknowable materiality of caviar is central to the formation of the caviar grey market in the EU; and I develop MacKenzie and Yates’ (2017) threefold distinction of ‘greyness’ to theorise caviar materiality and the grey market.

## 5.2 Illicit Activities and the Caviar Grey Market

### 5.2.1 Grey Markets

I argue that the caviar trade in the European Union is a ‘grey market’. Moreover, I make the case that it is the unknowable material properties of caviar that prove integral in co-producing the ‘greyness’ of the activities that consolidate the EU caviar market as a grey one. The notion of grey market employed here differs from the typical economic use of the term, in which a grey market is a shadow economy or parallel market which is not illegal, but where the objects in international trade are not authorised for sale in particular international markets. Instead, the notion of the grey market which I deploy, is one that has been applied extensively to the illicit trade in antiquities – although interestingly not to illegal wildlife trade. Using MacKenzie and Yates’ (2017) framework, I demonstrate how the concept of ‘greyness’ and the ‘grey market’ is directly applicable to the characteristics and the functioning of the illicit trade in caviar in the European Union. I therefore show that their framework has wider purchase beyond a focus on illicit antiquities.

MacKenzie and Yates (2017) state that usually the term grey market refers to the mixing of looted antiquities with those that can be sold legally. This mixing process is routinely witnessed in the caviar trade. However, they also demonstrate that grey markets are characterised by further nuanced forms of greyness that take place at the interfaces between legality and illegality. They explain that greyness:

First seems a somewhat straightforward and perhaps self-evident adjective to describe the global antiquities market…closer analysis finds several layers of meaning which allude to the multiple ways in which the interface between il/legal, il/legitimate and in/appropriate works in this marketplace (Mackenzie & Yates, 2017: 84).

Importantly, I make the case that these ‘several layers of meaning’ of greyness are present in the functioning of the European caviar market. The EU caviar market is not just ‘grey’ because of the intermixing of legal and illegal caviar– although this is an important component of the grey caviar market – but because of a “particular cocktail” (Mackenzie & Yates, 2017:83) of grey activities related to caviar (and its material properties) that exist at the interface between il/legality.

Unlike scholars such as Bichler, Bush and Malm (2013) who suggest that the grey market exists separately from the legal and illicit market; I argue that the grey caviar market does not exist as a distinct entity in a zone between a licit ‘white’ market, and an illicit ‘black’ market, where ‘grey’ transactions take place that are neither part of the legal or illegal zones of trade. Rather, I demonstrate that the European caviar trade is a grey market as it is largely impossible to distinguish between an entirely ‘white’ market or ‘black’ market in caviar, but that the two are so intrinsically intertwined as to make the whole market ‘grey’.

Further, I make the case that efforts to restrict the black market in caviar and to establish a regulated legal market built on aquaculture, have produced opportunities for ‘greyness’ in the market. New forms of illicit behaviour have emerged and become widespread – many of which are exploit the unknowable material nature of caviar. The material indecipherability of caviar serves to make illicit caviar trade harder to detect and locate, particularly as it is increasingly intertwined with ostensibly legal products and markets.

MacKenzie and Yates (2017) make a threefold distinction to explain how greyness variably manifests in the antiquities trade. I subsequently demonstrate with empirical examples how this threefold framework applies to the EU caviar trade. I show how the material indecipherability of caviar is enrolled in grey activities and serves to establish the international caviar trade as a grey market. The distinction that MacKenzie and Yates (2017) make between forms of greyness in the illicit antiquities trade is as follows. Firstly, “an uncertainty or contest in the ethical, legal, or normative construction of the issue” (Mackenzie & Yates, 2017:71). Put simply, this refers to how participants in the illicit trade engage in “active greying of the binary right/wrong distinction” (ibid:84) and employ discourses to neutralize or contest that their activities are illegal. Secondly, the threefold distinction of greyness recognises “the practical mixing of licit and illicit chains of supply” (ibid). And the final distinction of greyness is, “the changing social/market and legal classification of individual artefacts as they are laundered through multiple transactions and jurisdictions over time” (ibid). To various extents these elements of greyness are exhibited in the functioning of the illicit caviar trade in the EU.

### 5.2.2 The Caviar Grey Market

Unlike CITES restrictions that prohibit all trade in some endangered species and their derivatives, with caviar “we’re not talking about illegal trade where there should be no trade”[[124]](#footnote-124). Instead, in allowing some forms of caviar trade but not others, there simultaneously exists both a legal and illegal caviar market. Yvar confirmed that an ‘active’ black market for caviar exists, but operates almost exclusively underground amongst individuals who have been “involved with the criminal networks already for a long time”[[125]](#footnote-125), and is therefore fairly impenetrable. Whilst a black market in the traditional sense exists for caviar in the EU, the zero export quotas and fishing bans have not driven all illegal trade in wild caviar underground. On the contrary, the fact that there exists a legal, regulated market has meant that criminals have identified ways of infiltrating the legal market with their illegal caviar product. MacKenzie and Yates argue that “where there is a legal trade there will be an undercurrent of illicit activity which interfaces with it and exploits the profit opportunities it presents” (2017:81). This is certainly true of the legal caviar market which has undergone a greying and become polluted, thereby exemplifying Tom’s assertion that “when you allow a certain form of trade, but not another, it creates all these grey areas and loopholes”[[126]](#footnote-126) for illicit practices to flourish.

For the most-part the illicit grey practices that have emerged, transform illegal caviar into legal product. However, to complicate matters more, the reverse has also been noted: legal product being transformed into illegal product. Sigrid has conducted surveys on the availability of caviar and sturgeon products with illicit origins on the EU market, and explained the NGO’s findings:

What we really found was that there *was* wild sturgeon product sold as wild, but there was something that was sold as wild and was actually farmed. And the other way around again! So that it was of course wild, sold as farmed. So really there is blackwashing going on and there is whitewashing going on![[127]](#footnote-127)

These illicit practices - which I interrogate in turn -are predicated upon the ability of caviar to confound and elude material definition. As such, it is possible for one type of caviar to ‘transform’ into other type(s) of caviar, potentially numerous times.

Whitewashing

Whitewashing is the process by which criminal actors are able to transform an illegal commodity or product into something that appears legal. Whitewashing was frequently mentioned as the primary mechanism by which illegal caviar product is hidden on legal markets as ostensibly legal product. Caviar whitewashing typically involves wild caught caviar being laundered into the stocks of aquaculture facilities. This represents the obvious example of ‘greyness’, described by MacKenzie and Yates, which is the “practical mixing of licit and illicit chains of supply” (2017:71). There are a number of mechanisms by which the caviar market is polluted through these mixing and whitewashing processes.

Firstly, given the portability of caviar it is most common that after the caviar has been illegally harvested from wild sturgeon, it is then laundered into the legal stocks of an aquaculture facility. Yvar and others, recounted instances that proved, “that at least in the past they [European farms] were laundering with illegal caviar”[[128]](#footnote-128). For example, in the aforementioned German case that was prosecuted, Tom and Joseph explained that the company used a sturgeon farm in Germany as a ‘front’ and the owners were “just topping everything up” with wild caviar that they were whitewashing[[129]](#footnote-129). Less common is the laundering of live wild fish into aquaculture facilities. However, one caviar producer recognised that “illegal catches still exist. They can switch ‘W’ to ‘C’ [on a tin of caviar] just by taking them [sturgeon] out of a river system and placing them in some aquaculture place”[[130]](#footnote-130) – although this is a much rarer phenomenon as it is dependent upon a caviar aquaculture facility being in close geographical proximity to the native habitats of sturgeon, such as the Black Sea and Danube River.

Caviar producers also noted that whitewashing of caviar takes place further up the supply chain, away from the source where the caviar was harvested, or away from caviar production facilities. Typically, this form of whitewashing occurs at facilities that are registered to repackage large tins[[131]](#footnote-131) of caviar into smaller tins, which are then distributed to wholesalers, retailers, and restaurants. As such, mechanisms exist whereby illegally harvested caviar is brought to registered repackaging facilities and mixed into legal shipments. This may happen without the knowledge of the legitimate companies whose caviar is mixed with illicit product.

Irini outlined NGO suspicions that caviar harvested illegally in Romania is being laundered over the border into Bulgaria and mixed at registered repackaging facilities: “If it’s a big amount of caviar, then we have some suggestions that they are going to Bulgaria to do whitewashing. To put the labelling on and to put it into the tins, and go on the legal market”[[132]](#footnote-132). Repackaging of caviar is commonplace, but provides loopholes for illicit activities as caviar can be repackaged multiple times by middlemen, in third or even fourth countries[[133]](#footnote-133). Indeed Qerene emphasised that she is “convinced that there are some who have a lucrative business in questionable repacking practices”[[134]](#footnote-134), explaining how the middlemen “officially buy 100kg and they sell 120kg”, without anyone in an enforcement capacity realising or asking where the extra 20kg of caviar is coming from. Qerene is adamant that “as long as there is repacking there will be illegal things happening”[[135]](#footnote-135).

First and foremost, whitewashing of caviar is an example of the greyness associated with the mixing of legal and illegal supply chains. However there are other aspects of greyness intrinsic to the whitewashing of caviar. In disentangling these further aspects of greyness, this illustrates that “more sense and usefulness can be made of this ‘mixing streams’ idea when we combine that type of greyness with others” (MacKenzie & Yates, 2017:81). Illicit repacking of caviar also exhibits ‘greyness’ in that it demonstrates “the changing social/market and legal classification of individual artefacts as they are laundered through multiple transactions and jurisdictions over time” (ibid: 71). For example, those engaging in illicit repacking will mix illegal caviar into legal batches (where one batch is normally the caviar from a single fish)[[136]](#footnote-136). As this caviar is repackaged (sometimes multiple times) into smaller tins, at different repackaging facilities, often in different countries, the illicit product is “slowly cleaned as it passes through different hands; moving towards the white (licit) but most likely ending up grey” (ibid:82) as it acquires further official documentation and export certificates whilst passing through multiple nodes in the supply chain.



##### Image 5.1: Traditional ‘Mother Tins’ of caviar

These are 1.8kg and 1kg tins that caviar is repackaged into smaller containers from. Source: Author’s photograph

Thus, through multiple intermediaries and repacking stages, the batch of illegal caviar undergoes a ‘cleaning process’ whereby the illicit product becomes deeply embedded into the normal market supply chains, and is ultimately rendered ‘legal’ in the sense that it is bought and sold openly via legal channels and with correct documentation. Whilst this demonstrates how ‘black’ products are cleaned and their legal status becomes more ‘grey’; I suggest that it is also possible to think about the changing status of individual objects (or batches of caviar) starting from the referent point of ‘white’ caviar products. Shifting the focus of the referent object illustrates how ‘whitewashing’ of illegal caviar is very much a two-way process and necessarily entails a polluting of legal product. ‘White’ caviar products are sullied and also become more ‘grey’. This forcefully demonstrates my argument that the caviar market in the EU is characteristically ‘grey’ (rather than having separate legal and illegal dimensions), as both ‘black’ and ‘white’ caviar products are intrinsically intertwined in the market through greying activities and processes.

Moreover, there is a final strategy of whitewashing that criminal groups direct towards retailers in end-user markets. Instances of criminal groups using the threat of violence to force legitimate traders to sell their illegal products have been recorded. Yvar recounted:

Stories of caviar traders in Europe being threatened by criminal groups to buy their caviar…I’ll give you a ridiculous example which happened. They first arranged that kids were being used to offer caviar for taste, real wild caviar. And if they [traders] were not interested, then they were intimidated by violence to buy their caviar, to start in their network. So there’s also a form of actually the criminal organisations pushing legitimate traders to be involved also in illegal trade[[137]](#footnote-137)

In terms of the threefold distinction of greyness, this example is indicative of the ways criminal groups justify their activities via “an uncertainty or contest in the ethical, legal or normative construction of the issue” (MacKenzie and Yates, 2017: 71). For those criminals pushing their illegal product on legitimate traders, they neutralize their whitewashing activities through a normative contestation of the definition of illegality placed upon the practices they engage in. In reality, “most of them do not feel that it’s a very serious crime… They just see it like ‘grey’ business you know? They are dealing in these fish eggs. You know, they don’t see it as a crime”[[138]](#footnote-138). This is therefore an example of “the active greying of the binary right/wrong distinction achieved by a neutralizing discourse” (MacKenzie and Yates, 2017: 84). The criminal actors involved make reference to their whitewashing as ‘grey business’, and justify their actions based upon their long-term involvement in the caviar trade, and their vehement contestation of the framing of their practices as a ‘crime’.

The above examples of whitewashing demonstrate the mixing of legal and illegal caviar at different points in the supply chain, as well as exhibiting other aspects of Mackenzie and Yates’ (2017) threefold distinction of ‘greyness’. Whitewashing illustrates the importance of the indecipherable material nature of caviar in enabling these ‘grey’ activities to take place. Proving that mixing of licit and illicit caviar streams is taking place is acknowledged as “pretty hard to document”[[139]](#footnote-139); with enforcement officials also recognising that the significant “issues we have is whether illegally sourced caviar is being laundered into farmed caviar. The only way to target that is to do random sampling and do DNA testing to see does it match what’s on the tin”[[140]](#footnote-140). Once again, attention is drawn to the vital importance of what is materially hidden inside individual eggs of caviar, in order to distinguish illicit trade. The inability to systematically document the extent of caviar whitewashing is precisely why criminal actors have pursued this method of illicit trade. The whitewashing process evidently relies upon the unknowable material properties of caviar, which enables the product to be absorbed so easily, and virtually without trace, into the caviar stocks of ostensibly legal enterprises. As Qerene notes, “caviar will change from one type to another, *suddenly*”[[141]](#footnote-141), moving from illegal to legal, and entering the legal market undetected. But, in reality the caviar occupies a status as a ‘grey’ product, as “no amount of laundering through network and market structures can completely negate the object’s illicit origins” (Mackenzie and Yates, 2017:82). Thus, whitewashing of caviar illustrates how regulations that allow one form of trade but not another, have created loopholes whereby actors take advantage of the unknowable material properties of caviar to pursue illicit trade activities. In terms of my theoretical framework, this discussion emphasises the inherently more-than-human ways in which various actors in the EU resist environmental policies. Caviar is enrolled as a grey actor in the whitewashing process, through its unknowable material properties that make the identification of illegal caviar products on the EU market extremely difficult. I argue that the ensuing entanglement of legal and illegal markets thereby constitutes a grey caviar market in the EU; and represents an unintended geopolitical-ecological consequence of EU caviar trade regulations.

Blackwashing

Another mechanism by which the unknowable material properties of caviar are enlisted for illicit grey trade, is through the ‘blackwashing’ of legal caviar. This process is the opposite of the whitewashing described above, and involves instances where “captive bred caviar is being transformed into, or being sold as illegal caviar”[[142]](#footnote-142). It has been suggested that blackwashing as a wildlife crime phenomenon, may be unique to the caviar trade (Musing *et al*., 2019). Just as with the whitewashing of illegal caviar, this unlikely phenomenon takes a number of forms and degrees of organisation.

Given that demand for some types of wild caviar, such as beluga caviar, is still high and commands a very high price on the black market, it is perhaps unsurprising that some sturgeon farmers and companies capable of producing captive-bred forms of revered caviars, will seek avenues to sell their legal product on the underground black market by marketing it as ‘wild’. On the black market caviar is unlabelled: served in unmarked tins, jars, reused caviar tins, and even plastic takeaway boxes[[143]](#footnote-143); or is falsely labelled, with tins typically just displaying ‘Russian caviar’ or ‘Iranian Beluga caviar’ with falsified information for companies that do not exist – “the stickers of this company, you don’t know. So you check this company…You cannot find it”[[144]](#footnote-144). It is therefore virtually impossible to trace where blackwashed caviar comes from. For producers selling to the black market their actions are unlikely to have consequences, as the purchasing clients “don’t know anything. They don’t have any information. The good information they don’t have. They only want to have their caviar”[[145]](#footnote-145).

In terms of MacKenzie and Yates’ threefold distinction of ‘greyness’ this example once again fits into the “practical mixing of licit and illicit chains of supply” (2017: 71). However it represents a “very interesting”[[146]](#footnote-146) example of greyness, because rather than purposefully mixing illegal caviar into the legal supply chain, this represents the reverse: ensuring legal ‘white’ product enters the illegal ‘black’ market. This is a purposeful act of resistance against the norms of the market, whereby farmers discursively ‘pollute’ their legal product in order to tap into the black market potentials of higher profit margins. MacKenzie and Yates similarly note examples in the illicit antiquities market where: “traders engage in occasional moments of drift where they are temporarily dislocated from conventional normativity and open to the performance of a criminal actor, using discourse/narrative as the mechanism to achieve that drift into deviance” (2017: 72-73). It is precisely through the phenomenon of blackwashing that caviar farmers achieve this ‘drift into deviance’.

Blackwashing is also an example of the element of greyness described previously as “an uncertainty or contest in the ethical, legal or normative construction of the issue” (ibid:71). The caviar producers blackwashing their legal product on the black market use neutralizing techniques to justify that their behaviours are not really illegal. It is illegal to buy and sell caviar from *wild* sturgeon. However these actors contend that they are merely selling a legal product (albeit to a technically underground ‘black’ market) and therefore have not engaged in any illegal transactions. This exemplifies how participating in the market for caviar, “is to some degree to participate in, or at least benefit from, criminal enterprise and the process through which market participants justify their actions can be described as neutralizing an otherwise morally reprehensible action; greying it” (Mackenzie & Yates, 2017: 83). There is a distinct moral ambiguity in the process of blackwashing ‘legal’ product into ‘illegal’ product, which makes these activities grey by nature.

Another example of blackwashing sometimes occurs in which caviar producers are totally unaware that their product is undergoing blackwashing. Criminal networks linked to repackaging facilities will purposefully purchase farmed caviar and repackage the product, selling it as wild on the black market via their networks. For example, Oliya described recently coming across this method:

I saw this year another new thing. So the people buy the farmed caviar. They know which it is, what is inside. They have the invoice. And after they are going to put on their own label. This farmed caviar may be Gueldenstaedtii, Schrenkii, Dauricus. This *could not* be wild Huso Huso (Beluga). But they sell wild Beluga! And that was farmed caviar!”[[147]](#footnote-147)

Individuals engaging in this type of blackwashing represent ‘grey people’ in the market, known as “Janus figures” (Mackenzie and Davis, 2014). These individuals have roles at registered production or repacking facilities; but simultaneously “have occupied peculiar positions in the market over decades” (MacKenzie and Yates, 2017:84), in that they sit at a nexus between the legal and illegal trades. Yvar explained how such ‘Janus figures’ have been “involved in this caviar business for years, also in the 90s when they did have a connection with the illegal people”, and since then they have “transformed slowly their activities from illegal organizations into legitimate organizations, with still links to the illegal activities”[[148]](#footnote-148). These ‘Janus figures’ are integral to the functioning of the EU caviar trade as a grey market, because their social connections allow them to act as an intermediary between criminal networks, whilst retaining a front of respectability that enables them to engage with and supply the legal market.

Further, there are also less sophisticated examples of farmed caviar being sold as wild product. During market surveys, undercover NGO representatives posed as customers and would visit caviar retailers and enquire about the availability of wild caviar. Sigrid recounted visiting a market stall in Vienna and browsing the caviar sold there – which was labelled correctly according to CITES regulations – and remarking to the stallholder that the caviar was farmed caviar produced in Spain. She explained her surprise when the market stallholder vehemently defended that the caviar was Russian and wild. “Again, I say [to him], ‘it can’t be from the wild in Russia because it’s not allowed’”, and they go, “‘No! This is wild and Russian!’”[[149]](#footnote-149). In contrast to the previous examples of blackwashing of legal caviar, this seems to be an opportunistic, discursive method that preys on the assumed naivety of customers who are unlikely to understand the intricacies of the CITES caviar labelling system. Despite being an unsophisticated method, this example reinforces the fact that “the provenance of caviar from wild sturgeons – and from national territory – seems to still be a valuable sales argument” (Jahrl, 2013: 41), which drives discursive blackwashing of caviar product.

The various mechanisms by which blackwashing of caviar takes place range from organised to opportunistic, but all make use of the fact that the physical properties of caviar can shift and mutate as required. These examples illustrate once again that the material indecipherability of caviar is mobilised by actors to produce new forms of illicit trade that are enabled by the loopholes that exist when one type of trade is allowed, and another is criminalized. These particular forms of illicit trade codify the caviar market as a ‘grey’ one, as they variably demonstrate how EU regulations have prompted the legal trade and illegal trade to mix and become inseparable; echoing Yvar’s statement that “what we see as distinct worlds of legal and illegal, bona-fide and not bona-fide, is not the case”, but that both the whitewashing and blackwashing of caviar illustrate that this is a “very dodgy grey area”[[150]](#footnote-150); and in turn, I argue, a grey market.

## 5.3 Theorising ‘greyness’ from a more-than-human perspective

MacKenzie and Yates’ (2017) framework is useful and in many ways directly applicable for identifying ‘greyness’ in the EU caviar trade. Whilst MacKenzie and Yates seek to give a “definitive breakdown of the meanings and implications of the ideas of ‘greyness’ as it applies to this market” (2017: 70) in antiquities; I suggest that their framework does not completely capture the full complexity of greyness that characterises the EU illicit caviar market.

Absent from MacKenzie and Yates’ distinction of ‘greyness’ is a consideration of the vital material properties (Bennett, 2010; Barua, 2014) of the objects being traded. The authors do recognise that “antiquities are tangible objects but they often serve as a physical manifestation of intangible concepts that underlie the social fabric” of the groups from which they are looted (2017: 74). Arguably caviar is also a physical manifestation of various intangible socio-economic associations and perceptions that have been ascribed upon the product by human actors. Such perceptions drive some consumers to seek out wild caviar, and subsequently fuels the mechanisms of illicit trade described above. However, in drawing upon the theoretical foundations of more-than-human geopolitical ecology, I argue that it is imperative to move beyond MacKenzie and Yates’ (2017) cursory recognition of the affective characteristics of antiquities, or in this case caviar. These affective properties are an inherently human construction; and although important for understanding how grey markets in caviar function, I argue that the analytical purview must be expanded in order to capture the “active role of nonhuman materials” (Bennett, 2010: 2) in shaping the dynamics of ‘greyness’ that constitute the illicit grey market in caviar.

Paying sustained attention to the “vital material properties” (Banoub, 2019) of caviar is therefore essential in order to understand: a) the manifestations of greyness in the EU caviar market; and b) the geopolitical-ecological implications of the grey caviar market. This builds directly on the work of scholars such as Banoub, who argues that nonhumans are “co-constitutive of political processes” (2019: 4) and that through their vital properties they exceed and reconfigure political processes. This is evident in the EU caviar market, whereby the vital material properties of caviar have exceeded geopolitical-environmental interventions designed to control illicit caviar trade. As such, I propose a more expansive framework of greyness that explicitly conceptualises the role of the non-human objects/materials/beings –both living and nonliving- that are being traded, in co-constituting the characteristics of grey markets alongside human actors. To this extent, I argue that caviar itself is a grey actor and part of the assemblage of forces that coalesce to form the EU caviar grey market. I therefore advocate for a theorisation of grey markets from a more-than-human perspective.

Consequently, I argue that in thinking about the ways a market can be grey, we can turn our attention to individual objects in two ways. Firstly, in the way MacKenzie and Yates describe as “the changing status of individual objects as they pass through trafficking networks” (2017: 82). This formulation considers how objects practically transform from ‘black’ to ‘grey’ through the actions of humans, as they acquire certification and become embedded in legal markets. The second way I suggest we should turn our attention to the role of individual objects in making a market grey, moves away from human agency, and looks to the objects themselves. I suggest that objects such as caviar might already possess a grey status, through their intrinsic “properties, energies, potentialities, affects and affordances” (Sundberg, 2011: 322). For caviar this relates to its indecipherable material qualities that result in it being “neither one thing nor the other” (MacKenzie and Yates, 2017: 78). This is exemplified in the introduction of this chapter, regarding the caviar being sold in the Romanian airport. As such, caviar possesses grey properties that confound human attempts to make its materiality legible. I argue that caviar is simultaneously both a grey object enrolled by human actors, and a ‘grey actor’ possessing agencies that exceed efforts to bring the object under the remit of human control and regulatory frameworks. The vital grey properties of caviar have macropolitical implications as they co-produce geopolitical and ecological realities that are linked to the existence of the caviar grey market. As such, theorisations of grey markets must be expanded to consider the vital materialities of nonhumans, and the implications this has for geopolitical-ecologies.

An example from the geopolitical arena that exemplifies caviar as a ‘grey actor’ is Obama’s first diplomatic trip to Russia in 2009. Obama met Putin over a traditional brunch meeting at Putin’s home[[151]](#footnote-151). The breakfast included smoked Beluga sturgeon meat and caviar: the origin of which was not disclosed, and therefore geopolitically contentious. At the time the commercial production and sale of Beluga caviar was prohibited in Russia (Felgenhauer, 2009). So, if the caviar was of Russian origin it was almost certainly contraband. However, there were suggestions that the caviar could have been legally imported from Iran, which carried with it it’s own geopolitical ramifications for the US president given the extensive US sanctions against Iran. This is exemplary of the ‘greyness’ of caviar’s properties: during the brunch the caviar was simultaneously both Russian and Iranian, possessing varying implications dependent upon each of these possible origins. Thus, the black caviar emerged as a pertinent ‘grey’ geopolitical actor at the brunch, working on the side of Putin and his orchestration of the meeting.

The implications of Obama consuming the caviar were noted by the Eurasia Daily Monitor of the Jamestown Foundation, which reported that: “it is not clear what is more damaging for a US president: to publicly eat Iranian caviar or Russian contraband” (Felgenhauer, 2009). Ultimately though, it appears that the incident was hardly damaging for Obama in the public eye, as analysis of the content of the breakfast barely received any media coverage beyond Russian news outlets. This was noticed by Michael Goldfarb of the Washington Examiner who remonstrated that “Obama goes to Moscow and starts shovelling down gourmet endangered species and contraband fish eggs and you’d have to read the Russian wires to get the story” (Goldfarb, 2009). Goldfarb’s statement implies frustration that the details of the breakfast were seemingly silenced in the West, presumably to avoid negative press. Indeed, the situation is even more ironic given that the import of Beluga caviar into the US has been banned since 2005[[152]](#footnote-152). Irrespective of the lack of media attention and public outcry, there’s no denying that for Putin the incident likely represented a well-considered geopolitical power play, which deployed caviar’s grey properties in a leading role.

Beyond the emergence of a grey caviar market in the EU, this example adds further credence to my argument that the unknowable material properties of caviar have geopolitical significance and implications. This example also emphasises the importance of conceptualising the objects of illicit trade as grey actors that operate both alongside and independently of human actors. Paying attention to the vital material properties of caviar contributes to the theoretical development of more-than-human geopolitical ecology, by demonstrating that the unknowable materiality of caviar products is integral to the co-constitution of the EU caviar grey market, and has geopolitical effects.

## 5.4 Conclusion

This chapter has argued that the material properties of caviar matter greatly in co-producing the caviar grey market in the EU. I argue that caviar is to a significant extent materially ‘unknowable’, because the physical and chemical properties of caviar are difficult to decipher; and I examine how this has implications for how enforcement against illegal caviar trade takes place, or is curtailed in the EU. Moreover, I also illustrate how the indecipherability of caviar has been capitalised upon by criminal actors to produce new forms of illicit trade that intertwine the legal and illegal caviar markets.

Importantly then, in analysing the vital material nature of caviar and how this co-produces the EU grey caviar market, I position caviar as a ‘grey actor’ that shapes and co-produces geopolitical-ecological realities in the EU. This line of argument deploys theories and literatures explored in chapter two, which engage with the vibrant political affordances of nonhuman material things (Bennett, 2010; Sundberg, 2011; Tolia-Kelly, 2013; Barua, 2014; Banoub, 2019), in order to demonstrate how nonhuman actors are “co-constitutive of their sites, geographies and spaces” (Tolia-Kelly, 2013:154). The discussion in this chapter builds upon these literatures in order to shed new light on the materiality of caviar and its role in the geopolitical ecologies of caviar trade in the EU.

To contribute to the main arguments of the thesis I have continued to focus upon the unintended implications of caviar trade regulations in the EU. In respect of this, I have argued that regulations designed to enable one type of caviar trade whilst restricting another, have produced loopholes for illicit caviar trade to transform and flourish within ostensibly legal markets. Developing this line of argument further I make the case that the elusive material properties of caviar have interacted with these loopholes in the regulatory frameworks to create a grey market for caviar, which in practical terms, intertwines the legal and illegal markets together. Using MacKenzie and Yates’ (2017) framework for identifying the aspects of ‘greyness’ that produce grey markets, I illustrate how the characteristics of the caviar grey market in the EU are indelibly shaped by the indecipherable material properties of caviar. To this extent, I show that the development of the grey caviar market in the EU is an unintended consequence of loopholes in the regulatory frameworks.

I also make the argument that in the case of the caviar grey market, MacKenzie and Yates’ (2017) distinctions of greyness needs to be expanded to give space for considering the active role of caviar itself in shaping how the grey market emerges and functions. This therefore entails theorising ‘greyness’ from a more-than-human perspective, and necessitates conceptualising of non-human objects and entities as having “properties, energies, and potentialities” (Sundberg, 2011: 318) that exert an influence on the geographies and politics that they are situated in (Banoub, 2019). This again calls to the fore the importance of caviar’s micropolitical material properties; and how these properties are instrumental in co-producing macropolitical phenomena such as the caviar grey market, which in turn has geopolitical and ecological impacts.

Finally, I contend that a more-than-human framework for theorising ‘grey markets’ can open up avenues for thinking more broadly about other forms of illegal wildlife trade that take place at the interface between legal and illegal markets. Currently such forms of illegal wildlife trade are not typically conceptualised as grey markets, but I argue that the grey market framework can be widely applicable to other forms of illicit wildlife trade beyond caviar. In particular, an expanded version of this ‘grey market’ framework which aligns with more-than-human geopolitical ecology’s interest in the political affordances of nonhuman animals and objects, can add more nuance to understandings of grey markets; as well as providing new ways of explaining the more-than-human mechanisms by which illicit markets for wildlife come into being and function.

In sum, the chapter engages with the materiality of caviar to demonstrate how its micropolitical material potentials have macropolitical implications (Barua, 2014). These macropolitical implications are a result of both the intrinsically ‘grey’ nature of caviar as a material, and also how human actors enrol this materiality in ‘grey’ ways. These varying expressions of ‘greyness’ - in the materiality of caviar and how it is employed - ultimately culminate in the establishment of a grey caviar market in the EU. This grey caviar market is made up of a number of illicit activities, which have emerged as a result of the loopholes that exist in the regulatory frameworks when one form of trade is prohibited, whilst another is permitted.

# Chapter 6: Conserving sturgeon? The securitized politics of caviar production

## 6.0 Introduction

This chapter examines the political implications of securitizing farmed caviar production in the EU. I argue that the securitization of farmed caviar production is an overlooked geopolitical-ecological implication of the caviar trade regulations. In demonstrating this, I examine how farmed caviar production has been promoted as a policy intervention and conservation strategy by CITES, the EU, EU Member State governments, and NGOs. This policy support has given rise to a powerful narrative that positions farmed caviar production as a conservation panacea for endangered wild sturgeon. However, I argue that this narrative is riddled with gaps; and in highlighting these absences, I cast doubt over the conservation benefit of farmed caviar production and show that this is a policy grey area.

Nevertheless, the omissions in the narrative have been largely overlooked, and this imperfect narrative has been put to political use. Indeed, I argue that the narrative has served as a ‘green pretext’ (Ojeda, 2012) to justify the on-going securitization of farmed caviar production in the EU. Securitization refers to “the way that issues are described or remade as security threats” (Elliott, 2016: 69), which prompt specific interventions to deal with them. This chapter examines how farmed caviar production has been resituated in the EU conservation-security landscape, as an apparent response to the threat of sturgeon extinction. In scratching beneath the surface of the securitization process, I examine how narratives and strategies related to conservation, security, and capital accumulation coalesce in farmed caviar production. I ultimately argue that farmed caviar production is an example of ‘accumulation by securitization’ (Massé and Lunstrum, 2016), whereby new opportunities for capital accumulation are produced by the aligning of security and conservation agendas – even if the practical conservation value of farmed caviar production is overwhelmingly unclear.

Farmed production of endangered wild animals is viewed by some as a conservation policy option for tackling illegal wildlife trade and wildlife trafficking (Challender *et al.*, 2019). However ‘conservation farming’ (Gentry *et al.*, 2019) is a controversial policy option, and there is said to be “limited understanding of the conditions under which farming can aid conservation efforts” (Challender *et al*., 2019:2). Despite this, farmed production of caviar has emerged as a dominant policy and conservation discourse in the European Union, garnering little critical attention or controversy in the process. In line with O’Lear (2018), I argue that farmed caviar production has been stabilised as a geopolitical-ecological discourse in the EU via a powerful narrative that positions farmed caviar production as the panacea for sturgeon conservation. For the most-part, caviar industry representatives are the primary proponents of this narrative; but policymakers, NGO representatives, and scientists also promulgate this view, and at the same time, often demonstrate little critical engagement with the foundations of this narrative. I show that the widespread uptake of this narrative has given rise to the overwhelming securitization of farmed caviar production in the EU.

The caviar industry increasingly justifies the securitization of their operations under the ‘green pretext’ (Ojeda, 2012) of conservation. This in turn legitimates the extension of security logics into the physical infrastructures and material practices of caviar aquaculture facilities, as producers argue that they must intensify production in order to produce more caviar at a faster pace. This has resulted in a ‘respatialization of security’, which moves “the discourse and practice of securitization into new spaces and into the bodies of nonhuman organisms” (Johnson, 2015: 61). By critically examining the securitized materialities and practices of farmed caviar production in the EU, I demonstrate how the securitization process represents an example of ‘accumulation by securitization’ (Massé and Lunstrum, 2016), which is achieved under the pretext of conservation. I therefore determine that the primary implication of the securitization of farmed caviar production in the EU is capital accumulation, whilst the conservation impact remains unclear even though it is presented as a truth. Thus, this chapter complicates and adds nuance to the conservation narrative that sustains farmed caviar production as a geopolitical-ecological discourse in the EU.

The main argument of this thesis is that EU caviar trade regulations have gaps and grey areas that have produced (unintended) geopolitical-ecological implications. This chapter contributes to the main argument by demonstrating that the narrative characterising farmed caviar production as a conservation policy intervention has significant gaps. Specifically, the hegemonic narrative does not take into account a number of socio-political-economic factors that complicate the conservation potential of farmed caviar production. Instead, the conservation credentials of farmed caviar production are presented as a simplistic truth statement. However, attention to these overlooked socio-political-economic factors shows that the conservation potential of farmed caviar production in the EU is actually a policy grey area, as it has not been systematically measured or demonstrated to-date. I therefore argue that overlooking these socio-political-economic factors is a policy gap that has had unintended consequences: namely, fostering the securitization of farmed caviar production under the ‘green pretext’ (Ojeda, 2012) of conservation.

The chapter is structured as follows. In section 6.1 I critically analyse the narrative that farmed caviar production is a conservation panacea for endangered sturgeon. I examine how this narrative materialises and how it serves to entrench farmed caviar production as a geopolitical-ecological discourse. I then introduce counter voices that highlight the gaps in this policy move, and subsequently demonstrate that the conservation potential of farmed caviar production is a policy grey area. Section 6.2, examines how despite these grey areas, the apparent conservation benefit of farmed caviar production is deployed as a ‘green pretext’ (Ojeda, 2012) to justify and legitimate the securitization of farmed caviar operations. I describe how security logics have been integrated into both the material infrastructures and practices of farmed caviar production; and then disentangle how these securitized infrastructures and practices are integral to the process of ‘accumulation by securitization’ (Massé and Lunstrum, 2016). I examine how the alignment of conservation and security in this context, has produced opportunities for capital accumulation that are more tangible than any conservation outcomes. Finally, in section 6.3 I consider the more-than-human implications of ‘accumulation by securitization’ (Massé and Lunstrum, 2016). Questions regarding the ethics of securitizing farmed caviar production are rendered invisible by the power of the conservation narrative, and this I argue, can have negative implications for captive sturgeon.

## 6.1 The power of narrative: farmed caviar production, a conservation panacea?

As outlined in chapter four, the major efforts to regulate caviar trade globally have focused upon restricting the harvest of wild sturgeon for caviar production. A subsequent result of these regulatory restrictions has been the proliferation of farmed caviar production as a ‘supply-side’ policy response (Challender *et al.*, 2019) that is designed to continue to meet global demand for caviar. The high-level policy support for sturgeon aquaculture has resulted in farmed caviar production becoming entrenched as a geopolitical-ecological discourse in the European Union.

O’Lear argues that geopolitical discourses about the environment, “establish a particular way of ordering and prioritizing the world” (2018:15). To this extent, the embedding of caviar aquaculture as a geopolitical-ecological discourse in the EU, has been fuelled by a policy shift that prioritises the commercial captive breeding of sturgeon for caviar, over wild harvest. This policy shift has been increasingly promoted by powerful political entities and global regulatory actors such as the CITES Secretariat. Indeed, a representative of the CITES Secretariat explained that “the main push within CITES over the last years… was to basically rewrite the resolution in a way that it accommodates aquaculture – caviar produced in aquaculture and sturgeon produced in aquaculture – better”[[153]](#footnote-153). To this extent, caviar aquaculture has become entrenched as a geopolitical-ecological conservation-policy discourse that has gained support at the highest global policy levels. This discourse is further consolidated by the dissemination of a powerful narrative that designates farmed caviar production as the preeminent solution to declining sturgeon populations in the wild.

### 6.1.1 Caviar and conservation farming: The narrative

As the primary global instrument for regulating international caviar trade, CITES Resolution Conf 12.7 recognises “that the production of sturgeons in captivity *may* contribute to alleviating pressure on wild populations” (CITES, 2002:1, emphasis added). Although supportive of sturgeon aquaculture, this statement pales in comparison to some of the proclamations I witnessed about the conservation benefits of farmed caviar production. It seems that some actors – particularly in the caviar industry – have harnessed and built upon the statement laid out in CITES Resolution Conf 12.7, and in the process have developed a powerful narrative that positions caviar aquaculture as the conservation panacea for endangered sturgeon.

For example, when discussing the regulatory mechanisms with sturgeon farmer and caviar producer Danut, he was supportive of the introduction of the export quotas and labelling system, but countered that these mechanisms alone would not save sturgeon because they do nothing to satiate demand for caviar. He remonstrated that the extent of sturgeon farming and quantity of caviar produced through aquaculture in the EU generally, and in Romania in particular, was not enough to support sturgeon conservation: “If nobody is producing enough, then what is the label helping?”[[154]](#footnote-154). Rather, he ardently reinforced his view that supply-side conservation interventions must be ramped up in the EU, and that the farming of sturgeon and farmed production of caviar needs to flourish, as “to save the species you can save it *only* through aquaculture”[[155]](#footnote-155).

Delegates at the Aller Aqua 9th International Sturgeon Conference[[156]](#footnote-156) held in Warsaw in November 2018 also expressed similar sentiments. This conference was targeted primarily at sturgeon and caviar producers, with a focus on discussing current trade issues and sharing practical knowledge on farming sturgeon and caviar production. Aside from sturgeon farmers and caviar producers, the presenters and attendees also included scientists and NGO representatives. It was these latter delegates in particular who sought to impart upon farmers and caviar producers, the message that aquaculture is imperative for sturgeon conservation. For example, a representative of the World Sturgeon Conservation Society stressed that:

We need to push the producers. It [conservation] is something for the producers to support… We hope producers understand how important conservation is and will be willing to help… there are some opportunities where only aquaculture is able to support the conservation of the species[[157]](#footnote-157).

Moreover, a sturgeon geneticist speaking at the conference declared that “aquaculture has an important role in conservation”, and that “sturgeon might have gone extinct by now if it weren’t for aquaculture”[[158]](#footnote-158).

Similar narratives have also been expressed in the scientific literature, with studies positioning sturgeon aquaculture as “of decisive importance for conservation and restoration of sturgeon populations” (Steffens, 2008: 162). Furthermore, the narrative has trickled down into more popular forms of media, with the news section of seafood business website SeafoodSource, publishing an article concluding that “aquaculture seems to be the best hope for sturgeon’s survival”[[159]](#footnote-159). High profile conservation NGOs such as WWF have also communicated the message that “farms can satisfy the demand for caviar without putting a pressure on wild populations”[[160]](#footnote-160). Thus, the narrative that farmed caviar production and sturgeon aquaculture can save endangered wild sturgeon, is reinforced and disseminated across a broad spectrum of sectors ranging from conservation organisations to businesses. Through the widespread dissemination of this narrative, farmed caviar production is entrenched as a geopolitical-ecological discourse, and positioned as the central component in the drive to conserve wild sturgeon in the EU and beyond.

In explaining exactly how farmed caviar production acts as the panacea for sturgeon conservation, proponents of this narrative argue: “that aquaculture reduces pressure on wild [sturgeon] populations. From the poachers point of view, if caviar prices decline, it is no longer so profitable for them to engage in it [poaching]”[[161]](#footnote-161). Further expanding on this, Danut stressed that “because you produce more, you can sell it cheaper. The caviar. The meat. You can sell it cheaper even than the poached fish. *Everybody* knows it who is in the fishing business. Through aquaculture you can protect the natural species”[[162]](#footnote-162).

This hypothesis is central to the wider field of ‘conservation farming’ (Gentry *et al.*, 2019), upon which the geopolitical-ecological discourse of caviar aquaculture is built. The commercial captive farming of endangered wild flora and fauna threatened by overexploitation for global wildlife trade, has been implemented in a range of global contexts and is a ‘growing industry’ (Tensen, 2016). Conservation farming has been explored for species including, but not limited to: lions (Williams and Sas-Rolfes, 2019), tigers (Kirkpatrick and Emerton, 2010), alligators (Moyle, 2013), bears (Dutton, Hepburn and Macdonald, 2011), porcupines (Brooks, Roberton and Bell, 2010) orchids (Phelps, Carrasco and Webb, 2014) and seahorses (Gentry *et al.*, 2019). The commercial captive farming of these endangered species is predicated upon the market-based hypothesis previously described by Danut, that:

Price decreases as farmed animals flood markets and as wildlife farms increase competition in markets originally dependent on overexploited stocks. As markets adjust to these new conditions, the profits of poachers decrease. Pressure on wild stocks of overexploited species is then reduced because poachers have less economic incentive to harvest (Kirkpatrick and Emerton, 2010: 656).

Theoretically then, farmed caviar production offers a neat market-based mechanism to counter overexploitation of sturgeon in the wild. This is an outwardly compelling solution to sturgeon conservation, and has consequently been promulgated by a diverse range of actors who disseminate the narrative that farmed caviar production is the panacea for sturgeon conservation in the EU. In the process of diffusing this narrative, the conservation potential of farmed caviar production has been presented less in theoretical terms, and increasingly as an unquestionable fact. Thus, the policy moves that have entrenched farmed caviar production as a geopolitical-ecological discourse in the EU, have inadvertently ushered in a powerful truth claim that farmed caviar production is the silver-bullet for sturgeon conservation. This narrative appears to have received little to no critical appraisal in either scientific or policy fields, and as a result has proliferated and stabilised caviar aquaculture as a geopolitical-ecological policy discourse. However, in the following section I argue that the narrative has a number of gaps, which are hidden by the truth-claim that farmed caviar production is the solution for sturgeon conservation. In reality, the conservation potential of farmed caviar production is a policy grey area.

### 6.1.2 Gaps and grey areas in the conservation potential of farmed caviar production

Whilst the commercial captive-breeding of wild species has been promulgated as a conservation policy option for a range of endangered species including sturgeon, it proves to be “a contentious conservation measure” (Moyle, 2013: 1663). Critics argue that conservation farming puts “unquestioning faith in the workings of market” (Kirkpatrick and Emerton, 2010: 658), to such an extent that it is built upon a number of flawed assumptions. Specifically, conservation farming is built upon a conceptual model that presumes the market for wildlife products is perfectly competitive and extricated from external forces beyond supply, demand and price dynamics. Although there is theoretical support for conservation farming, in practice it is unclear under what conditions captive-bred farming aids conservation (Challender *et al.*, 2019). Indeed in some cases, legal captive-production of endangered species is said to have catalysed poaching and actually had the “opposite effect to what is desired for conservation” (Tensen, 2016: 295). Despite these criticisms, the commercial captive farming of sturgeon for caviar remains largely uncontroversial, and has not attracted the same degree of critical attention as other conservation farming initiatives such as those for tigers (Kirkpatrick and Emerton, 2010) or pangolins (Challender *et al.*, 2019). As such, farmed production of caviar continues to garner significant traction as a compelling and neat market-based solution to the threat of sturgeon extinction.

However, not everyone shares the same conviction that farmed production of caviar is a panacea for sturgeon conservation. On the contrary, a minority of voices have challenged this narrative. In a similar vein to Kirkpatrick and Emerton’s (2010) criticism of the principles underpinning conservation farming, these minority voices have suggested that the dominant policy narrative espouses a simplistic and idealised portrayal of caviar market dynamics in the EU. For example, Graham who is a sturgeon farmer and caviar producer himself, departed from the mainstream by relaying his view that “yes farmers *say* they save sturgeon by cultivating them… but as much as aquaculture *says* that it is reducing pressure on the wild resources by supplying the market with the prized caviar, in my opinion this does not help much”[[163]](#footnote-163). Rather, Graham recognised that whilst it is a neat economic theory that farmed caviar production can save endangered wild sturgeon, in reality this narrative has a number of gaps. In fact, the narrative overlooks significant socio-political-economic issues that would add necessary nuance to the proclamations that farmed caviar production is the conservation panacea for sturgeon.

Firstly, Graham’s opinion diverged from that of Danut and representatives of the World Sturgeon Conservation Society, about the possibilities for farmed caviar to undercut the price of illegally harvested caviar. He maintained that “it will always be cheaper to fish sturgeon than to grow the fish”[[164]](#footnote-164) because: sturgeon farming has high initial set-up costs; it is a cost intensive farming method; and the slow maturation of sturgeon means that it takes many years for them to produce caviar. Caviar producer Oliya stressed that legal caviar sold cheaply is likely to be very poor in quality, as farmed caviar prices now remain fairly static and are largely determined by the costs of running a sturgeon farm. She admitted that the “problem for the European farms, is the [running] cost. The cost is really expensive. It takes so many years, and you also have the wages of the people who work for you, and to get the temperature of the water right. You know the cost to farm is *very* high”[[165]](#footnote-165). In their account of tiger farming, Kirkpatrick and Emerton point out that alongside investment in infrastructure and operating costs, “farmers also often must shoulder the costs of the regulatory structure that allows them to sell their products. In contrast poachers have relatively low costs” (2010: 657). This is true of the caviar industry, who are beholden to the demands of CITES and the bureaucratic procedures they must adhere to in order to sell their caviar. Thus with farmed caviar production there are relatively low profit margins due to high operating costs.

Kirkpatrick and Emerton also suggest that “with low profitability and imperfect competition, it is unlikely that farmers will oversupply a market so that prices will decrease, particularly for products currently seen as a luxury” (ibid). Given that many producers maintain that “the image of caviar should stay as a luxury”[[166]](#footnote-166), it seems improbable that they will be willing to reduce the price of their products if they are not able to radically reduce their operation costs at the same time. Even if the price of farmed caviar does decrease, this is likely to be marginal and take place over a long time frame. Based upon extensive EU market surveys on caviar prices and availability, NGO representative Sigrid maintained that in sturgeon range states such as Romania, illegal caviar from poached sturgeon is currently much cheaper to purchase than farmed varieties[[167]](#footnote-167). As such, there are obvious grey areas regarding the timeframes and technicalities of if, and how, farmed caviar prices could realistically undercut the price of poached caviar. These grey areas are excluded from the conservation narrative, but when taking these factors into consideration it is possible to surmise that the price of poached caviar will continue to remain economically competitive for the foreseeable future.

A further factor that is overlooked by the narrative that farmed caviar production is the panacea for sturgeon conservation, is the on-going social desirability of wild caviar. The premise of conservation farming is to assume “that farmed stocks can substitute for wild stocks” (Kirkpatrick and Emerton, 2010: 657). However this can only happen if the products are matched in quality, and there is an attendant shift in consumer demand and behaviour. Unfortunately, Graham stressed that flooding the market with farmed caviar will do nothing to displace the widespread perception amongst consumers – and some producers - that wild caviar is better in quality and taste than the farmed varieties. Graham himself said that the “quality of the farmed product versus wild is usually much lower”[[168]](#footnote-168). Other industry representatives such as caviar importer and wholesaler Mollie[[169]](#footnote-169) also declared that the taste of wild caviar is “better” than farmed varieties. This perception about quality, and the overwhelming preference for wild caviar amongst caviar industry representatives, trickles down to consumers. For example NGO representative Melanie[[170]](#footnote-170) explained that in the Ukrainian fishing communities she works in, poachers continue to catch Beluga sturgeon based upon the orders they receive from “rich people” in Kyiv. Ultimately caviar “is not a product, it’s a perception”[[171]](#footnote-171), and the symbolic draw of wild caviar is likely to continue to drive demand for the ‘real’ product, irrespective of the price or availability of farmed caviar on EU markets. Thus, it remains unclear whether farmed caviar can act as a substitute for wild caviar. This is another grey area overlooked by narratives that present farmed caviar production to be a conservation panacea.

The conceptual models underlying supply-side conservation, also assume that the behaviour of poachers is economically rational (Gentry *et al.*, 2019). However, Graham highlighted that in the case of sturgeon fishermen their poaching motivations are nuanced, and not solely influenced by the relative cost differential between poached caviar and farmed caviar. Graham pointed to the fact that the policies promoting a move towards sturgeon aquaculture, do not take into account the impact of this policy shift on the livelihoods of fishermen in sturgeon range states (the implications of which I discussed in chapter four). To briefly reiterate, aquaculture enterprises rarely employ or provide economic benefits to fishing communities in sturgeon range states; and sturgeon fishermen may be motivated to pursue sturgeon crimes in lieu of alternative economic options. As discussed, in some cases poaching is acknowledged to be a protest against the regulations. The incentive to poach is further compounded by the fact that poaching in sturgeon range states such as Romania continues to be a low-risk, high reward activity, because - as with other forms of poaching – “rates of detection, arrest, prosecution, and conviction for wildlife crime are low” (Kirkpatrick and Emerton, 2010: 657). Thus, there are myriad motivations for fishermen to poach; and whilst enforcement efforts remain chequered at best, poaching is likely to continue and undermine the perceived conservation benefit of farmed caviar production. In this regard, the narrative that farmed caviar production is a conservation panacea for sturgeon, takes a very static and economic view of what drives sturgeon poaching. In reality, the motivations for sturgeon poaching are nuanced; and this is therefore another overlooked factor that blurs the conservation credentials of farmed caviar production.

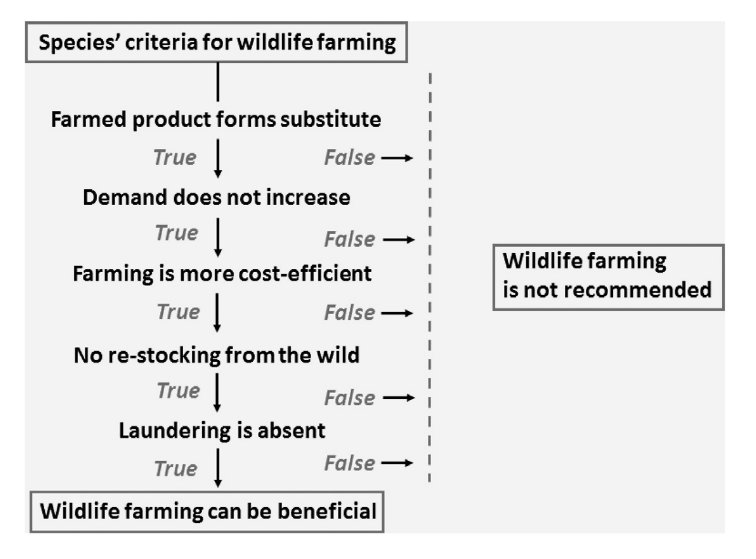
Moreover, the narrative fails to acknowledge that “aquaculture has its issues”[[172]](#footnote-172). Specifically, caviar aquaculture enterprises are increasingly purported to be involved in illegal caviar trade – as discussed in the previous chapter. This points to a need to ensure that “farming establishments are adequately monitored” in order to prevent wildlife laundering (Challender *et al.*, 2019: 10). However, in the case of caviar aquaculture facilities, ex-enforcement officer Bram admitted that “there’s no control of the breeding stations. Nobody knows who’s responsible for these kinds of controls”[[173]](#footnote-173). Even when controls do occasionally take place, ex-enforcement officer Michael worries that a lack of specialist knowledge amongst enforcement officers will mean that instances of laundering are missed: “what police or customs officer can tell you – ‘here we are we’ve got 7 sturgeons, how much caviar will that produce?’ It’s a nightmare!”[[174]](#footnote-174). With a lack of monitoring and generally low levels of specialist knowledge amongst enforcement officers, there is a real concern that “laundering of wildlife products into the market of legalized, commercially-bred products could enhance poaching pressure on wild populations” (Tensen, 2016: 294). This has been the case for other species including crocodiles in Thailand, turtles in China, and bears in Asia, where legalized captive-bred trade catalysed the laundering of wild specimens to such an extent the species almost became extinct (Tensen, 2016). These conclusions suggest that conservation farming can actually have a detrimental effect on wild populations of endangered species, because it “offers a perfect guise” for laundering of wild specimens (Tensen, 2016: 293). As discussed in the previous chapter, there are indications that this is happening in the caviar trade in the EU. However these dynamics are not acknowledged in the narratives told about the conservation value of farmed caviar production; and so the laundering of wild caviar into farmed stocks remains an overlooked grey area in the policy narratives stabilising the move towards farmed caviar production.

Thus, Graham’s doubts about the ability of farmed caviar production to act as the conservation panacea for sturgeon, echoes others who have raised concerns about the conservation credentials of so-called ‘conservation farming’. In sum, Tensen (2016) suggests that wildlife farming can benefit species conservation only if it meets a number of requirements (see figure 6.1). These criteria are as follows:

(i) the legal products will form a substitute, and consumers show no preference for wild-caught animals; (ii) a substantial part of the demand is met, and the demand does not increase due to the legalized market; (iii) the legal products will be more cost-efficient, in order to combat the black market prices; (iv) wildlife farming does not rely on wild populations for re- stocking; (v) laundering of illegal products into the commercial trade is absent (Tensen, 2016: 286).

Unfortunately, as identified by Graham, and discussed above, paying attention to the wider socio-political-economic factors related to sturgeon conservation and illegal caviar trade, reveals that farmed caviar production does not conclusively demonstrate most – if any- of the criteria identified by Tensen (2016) as necessary in order for captive breeding to be a suitable conservation tool. As such, there is reason to doubt the narrative that farmed production of caviar is the conservation panacea for wild sturgeon in the EU.

Furthermore, Kirkpatrick and Emerton argue that “conservation policy cannot be removed from the social and political environment in which it is implemented” (2010: 657). However, the dominant narratives that sustain caviar aquaculture as a geopolitical-ecological discourse and policy move in the EU, do precisely that. The narrative removes any ambiguities about the potential conservation benefits of farmed caviar production, and thereby divorces farmed caviar production from the wider socio-political context in which it is situated. However, by resituating farmed caviar production amongst the overlooked socio-political-economic factors highlighted by caviar producer Graham, I demonstrate that the practical conservation potential of farmed caviar production is overwhelmingly unclear and riddled with grey areas. Despite this, many caviar producers paint a singularly positive narrative about the potential of farmed caviar production to conserve wild sturgeon.



#### Figure 6.1: Criteria that have to be met for wildlife farming to be suitable as a conservation tool.

(1) farmed products must provide a substitute for wild products, (2) the demand for wildlife products does not increase; (3) legalized farming is more cost-efficient than illegal poaching; (4) wildlife farms do not rely on wild population for re-stocking; (5) laundering of illegal products into the wildlife farming industry is prohibited. Source: Tensen (2016)

Graham suggested that proponents of the conservation narrative knowingly – and tactically - omit or divert attention away from the grey areas that serve to cast doubt over the conservation attributes of farmed caviar production, as it is in their interest to promote captive-bred caviar as the conservation panacea for sturgeon. Disseminating and reinforcing this simplistic narrative serves a purpose for caviar producers, by firmly entrenching the view that their enterprises are an indispensible component of the sturgeon conservation landscape in the EU. This dominant narrative both takes advantage of, and simultaneously shapes, the continued policy support for farmed caviar production as a conservation method. The policy support lends legitimacy to the practices of caviar enterprises, further shielding them from political oversight and critical attention; which in turn, has enabled the caviar industry to pursue and justify an increased securitization of their operations. In the following section I critically interrogate the underlying reasons for, and political implications of, the increasing securitization of farmed caviar production in the EU.

## 6.2 Securitized caviar production

The proliferation of the narrative that farmed caviar production is a conservation panacea for wild sturgeon, has had powerful material effects with political implications: most notably, the securitization of farmed caviar production as a ‘conservation’ method. I define securitized caviar production as the on-going process by which some actors have discursively transformed the production of caviar into a matter of conservation-security; which in turn has led to the adoption of security logics and technologies into the infrastructures and practices of caviar enterprises in the EU. Put simply, securitized caviar production entails managing captive-bred sturgeon for caviar production, through the increasingly intertwined logics of security and conservation.

To this extent, securitized caviar production represents an apparently novel iteration of the broader securitization of conservation, whereby threats to nature are characterised as requiring securitized interventions. In their increasingly established role as pseudo-conservation actors, caviar industry representatives position the double-threat of sturgeon extinction and caviar related organised crime, as a reason to extend security logics and technologies into their operations. In short, caviar producers argue that securitizing production enables them to produce more caviar in shorter timeframes in order to ease pressure on wild sturgeon. This justification is outwardly compelling. However, the implications and underlying motivations of securitizing caviar production requires interrogation. In line with O’Lear (2018) I therefore argue, that ‘security’ is invoked to stabilise the geopolitical-ecological discourse that farmed caviar production is a conservation panacea for endangered wild sturgeon. But at the same time, I question who or what is actually secured, or benefits, from these securitizing moves.

By examining the securitized materialities and practices of farmed caviar enterprises, I demonstrate that caviar producers utilize the conservation narrative as a ‘green pretext’ (Ojeda, 2012) for securitizing their operations, and at the same time identifying opportunities for capital accumulation. To this extent, I argue that farmed caviar production in the EU is an example of ‘accumulation by securitization’ (Massé and Lunstrum, 2016). Accumulation by securitization “captures the way capital accumulation, often tied to land and resource enclosure, is enabled by practices and logics of security” (ibid: 227). Massé and Lunstrum (2016) apply the concept in the more typical conservation setting of the Greater Lembobo Conservancy in the Mozambican borderlands. At essence, accumulation by securitization charts how conservation-security enables capital accumulation to flow directly “through promises and practices of security” (ibid: 234), whilst simultaneously dispossesing marginalised actors. In this regard, I demonstrate that securitizing caviar production via the ‘green pretext’ (Ojeda, 2012) of conservation, has primarily created opportunities for capital accumulation, rather than demonstrating any tangible conservation impact.

### 6.2.1 Securitized infrastructures

The securitization of the material infrastructures of sturgeon aquaculture and caviar production facilities in the EU is commonplace; and I argue, an unintended consequence of the policy move towards farmed caviar production. This policy move has shifted the mechanisms of organised crime in unintended ways, some of which are discussed in the previous chapter. However, the policy shift towards farmed caviar production has catalysed a number of developments in organised crime, which have been reported by some caviar industry representatives. The involvement of organised criminal groups in sturgeon poaching and illegal caviar trade is well documented (Zabyelina, 2014; van Uhm and Siegel, 2016; Musing *et al*. 2019). Some caviar producers are now suggesting that the organised criminal groups historically involved in sturgeon poaching and illegal caviar trade, have shifted their activities to target caviar production facilities. Thus, the perceived threat of organised crime has prompted a securitization of the material infrastructures of these enterprises.

This process of securitization in this context constitutes an intriguing dovetailing of conservation and security narratives through farmed caviar production. Conservation is generally seen to require secure spaces (Massé and Lunstrum, 2016); and thus without secure spaces there is perceived to be an increased possibility of organised criminals breaching the caviar production facilities to steal sturgeon and caviar. It is argued that such thefts would impact the amount of caviar the facilities could produce for the legal market, and thus by extension limit the conservation impact of farmed caviar production. As such, caviar producers argue that the securitization of the physical infrastructures of their enterprises is a necessity for them to contribute to sturgeon conservation. The securitization is further legitimized by the policy support for farmed caviar production as a supply-side conservation method - despite the fact that this policy move has gaps that cast doubt over the practical conservation benefit of farmed caviar production. In this regard, I argue that the simplistic conservation narrative is used as a ‘green pretext’ (Ojeda, 2012) to justify a ‘respatialization of security’ (Johnson, 2015) into the material infrastructures of caviar aquaculture.

Those companies operating facilities in sturgeon range states where caviar-poaching economies are firmly established, were particularly vocal about the threat posed by organised criminal groups. For example, caviar producer Oliya described her own experiences with organised criminal groups targeting their business. She explained that her company produces some of its caviar from a sturgeon farm operated on the banks of the Iranian part of the Caspian Sea. At this farm the company had installed outdoor pools for rearing adult sturgeon in the waters of the Caspian Sea, but only one week after installation they returned to find that there were no sturgeon remaining in the pond. The defences of the pond had been cut open and the fish had been stolen. Oliya explained that through their investigations the company discovered it was organised criminals who had targeted their enterprise, abetted by insider knowledge: “there is a black market out there. Even in our own facility! We have about 30 people that work there. Even from there, they take the fish… our own staff! You couldn’t imagine it”[[175]](#footnote-175).

Moreover, caviar producers operating farms in EU Member States also discussed their experiences of being the target of organised crime. Ethan – the director of a caviar company and sturgeon farm – relayed an incident where his company were victim to the elaborate theft of 100 live sturgeon as they were being transported to Ethan’s farm. He recounted awaiting a phone call to be informed about the time to expect delivery of the sturgeon, only to be told that all the fish had died during international transportation from the breeding facility to his farm premises. On querying this he was met with unanswered phone calls and eventually, stories that didn’t add up. In investigating the situation further, Ethan uncovered that a rival caviar company had intercepted the haulage truck, and stolen the fish for their own stocks. After making this discovery, Ethan “contacted the police, the police came and took statements. And then about 3 days later the money was in our bank, and the police said we hadn’t got a case anymore, because they’d paid us back, so it’s not theft anymore”[[176]](#footnote-176). Ethan stressed the interconnections between organised crime and the ‘legal’ caviar industry[[177]](#footnote-177), explaining that since this incident he’s experienced people “trying to catch me out all the time”[[178]](#footnote-178), via a range of nefarious methods.

As a result of the spectre of organised crime and the destabilising impact this can have on caviar production, caviar producers have taken steps to physically securitize the material infrastructures of their facilities. During fieldwork I visited five sturgeon farms and caviar production facilities, and witnessed first-hand the securitized nature of these facilities. First of all, concerns about being the target of organised crime shapes where the facilities are located and how they are publicly presented. The facilities I visited were in remote, inconspicuous locations, such as rural areas or vast industrial parks. On the one hand, the remoteness of these facilities is often determined by the amount of land needed for large-scale sturgeon farming and caviar production; but on the other hand, producers who wish to maintain a degree of secrecy about their operations often seek out such remote and inconspicuous locations. The facilities I visited typically lacked markings or signs that would serve to draw attention to what was being produced there. For example, sturgeon farmer Ethan admitted that their company actively avoided advertising the nature of their business at the farm-site they rented, remarking that those living in the closest rural village were largely unaware that a caviar farm was operating on the site: “all they remember is that it was stables, it was a worms place, it was a mushroom place. It just doesn’t ring with caviar”[[179]](#footnote-179). It was common practice for the location of the caviar farm to be shrouded in secrecy. In a number of instances I was not permitted to visit the caviar aquaculture facilities with companies citing hygiene, practical, and quality issues, as the reasons they were unable to disclose the location of their farms. Instead I was hosted at registered company offices storing no caviar or sturgeon.

Beyond taking efforts to keep the location and nature of these businesses relatively secret, producers go to great lengths to fortify the enterprises by integrating security technologies into the material infrastructures of the farms. A visit to a sturgeon farm and caviar production facility in Romania starkly demonstrated the integration of security logics and technologies into the materialities of caviar production. I describe this visit in the following excerpt taken from my field notes[[180]](#footnote-180):

It was a scorching hot July day in the Romanian countryside and we were sheltering from the heat in the air-conditioned caviar production room of Byni’s farm and caviar production facility. Gathered in the room were Byni, owner of the farm; Zaharia - a sturgeon specialist from the Danube Delta National Institute for research and development who had accompanied me to the facility; and myself. Byni explained the measures that are taken by the staff to ensure that the farm is extremely secure: stressing that it was very important for her to be assured that the farm was always secure, particularly as she spent a lot of time in Bucharest which is over 200km away from the farm. Byni produced a tablet device, opening an application that brought a 3x4 grid of moving images to life on screen. I realised that these were CCTV footage streams from locations across the farm complex and outbuildings. I spotted myself on one of the screens and scanned the room for a camera, finally identifying a small camera lens set into the wall in the corner of the room. In another image I could see the security guards (who maintained a presence at the farm for 24 hours a day) stationed outside the farm buildings; a stream of footage located at the turn-off from the main road, leading onto a dirt track to the farm; and the other rectangles of footage focused on the collection of indoor and outdoor sturgeon ponds that housed sturgeon at a variety of life stages. Byni swiped across and brought another 12 squares of footage to life on the screen, explaining that these images were being streamed from CCTV cameras installed at the company’s other sturgeon facility - located hundreds of kilometres away. She angrily remarked that she could see that the lights weren’t turned on in one of the outbuildings at the other farm, which housed some pools of sturgeon, and she immediately made a phone call. Within 30 seconds we saw the lights being turned on, and the pools of sturgeon were illuminated on the tablet screen. Byni explained that the surveillance cameras are a vital part of the infrastructure of her sturgeon farms and production facilities, enabling her to manage the farms – and staff – from a distance, and keep track of any visits made to the farm.

The use of surveillance cameras in the manner described by Byni was a feature common to all of the caviar production facilities and sturgeon farms that I visited. Many farms also had complex alarm systems, going to great lengths to ensure that their sturgeon and caviar were kept securely, and a minority had a team of security guards undertaking surveillance of the premises 24 hours a day. Caviar producer Ethan explained that after the theft of the sturgeon and other examples of interference, he had increasingly come to worry that criminals may locate and tamper with the water source for their farm. He outlined that they had originally intended to pump water from a nearby stream directly into the sturgeon pools, and that they had the infrastructure to do so. However after their experiences:

We just couldn’t use it. Because if X[[181]](#footnote-181) put a tin of paraffin or something into it [the stream], well you can imagine… If they find out where we are, you know they could put cyanide in the water. They could do anything! So we don’t use the stream. So we’re using tap water, which we then dechlorinate and put it through a deionizer, and we are basically making our own water backwards. It seems stupid… but it was the only way we could feel safe. So anyway, we agreed with the landlord that we could have a borehole, so now we’ve got a borehole. So the borehole will be padlocked… just so the borehole stays safe[[182]](#footnote-182).

When asking Ethan why their company went to such lengths to undertake a ‘respatialization of security’ (Johnson, 2015) into the physical infrastructures of the farm, he simply replied “it’s all about the sturgeon”[[183]](#footnote-183). This in turn reinforced the narrative that farmed caviar production is a sturgeon conservation tool, and should be securitized in response to the shifting modalities of organised crime.

However, whilst the securitization of the physical infrastructures of farmed caviar production may be justified under the ‘green pretext’ (Ojeda, 2012) of conservation and destabilising related organised crime, it also serves other productive means for caviar producers. By ensuring that organised criminals are ‘locked-out’ of the caviar facilities, this effectively means that other actors are also locked-out; and farmed caviar production is further shielded from political oversight. This maintains the status quo whereby “there’s no control of the breeding stations”[[184]](#footnote-184), and so there is limited understanding of what takes place at the facilities. On the one hand, this could shield illicit activities such as laundering of caviar discussed in the previous chapter. On the other hand, securitizing the physical infrastructure of these facilities effectively locks out competitor companies. This enables caviar producers to engage in and experiment with intensified practices of caviar production that are taken under the guise of sturgeon conservation, but are simultaneously driven by an aspiration to remain at the cutting edge of a notoriously competitive industry. This points to the fact that farmed caviar production represents “the meeting of security, conservation, and accumulation” (Massé and Lunstrum, 2016: 235). As such, I argue that the securitization of the physical infrastructures of farmed caviar production has laid the groundwork for a discursive securitization of the practices of farmed caviar production, and created new opportunities for capital accumulation in the process. Thus, in the following section I examine the securitized practices of farmed caviar production, and situate them in the conservation-security-accumulation nexus.

### 6.2.2. Securitized production practices

The securitization of the physical infrastructures of farmed caviar production facilities has been enabled by a policy move that positions farmed caviar production as a conservation panacea for sturgeon, whilst simultaneously overlooking a number of socio-political-economic factors that would serve to complicate this picture. The narrative underlying this policy move has obvious gaps; but nevertheless, it has paved the way for the practices of farmed caviar production to be discursively securitized alongside the physical infrastructures of the production facilities. Analysing the discursive securitization of caviar production practices reveals how efforts to intensify caviar production and increase caviar yields, is increasingly framed as a way of reducing the ecological insecurity of critically endangered wild sturgeon populations. To this extent, these practices ostensibly constitute a process of ‘eco-securitization’ (Johnson, 2015), which intervenes at the bodily level of farmed sturgeon in an attempt to intensify farmed caviar production as a supply-side conservation method.

My analysis demonstrates that EU caviar producers are engaging in a number of techno-mediated interventions that appear to “change the spatial dynamics of security practices by operating them on and through knowledge of nonhuman life cycles” (Johnson, 2015: 68). In other words, the integration of conservation-security narratives into caviar production seemingly operates on the assumption that “life can be accordingly secured ‘out there’ through the management of other life” (ibid: 72). Which in this context, refers to the notion of wild sturgeon being secured through the management of the life cycles of farmed sturgeon. To this extent, I argue that through the discursive securitization of farmed caviar production, captive sturgeon are refigured as more-than-human security actors.

Moreover, in analysing how the life cycles of farmed sturgeon are managed through practices that are infused with security discourses, I begin to disentangle the conservation-security-accumulation nexus that is at work in farmed caviar production. I subsequently argue that the intensified practices of farmed caviar production foreground conservation as a ‘green pretext’ (Ojeda, 2012) for securitization, even though producers typically provide no tangible evidence of conservation impact deriving from their operations. Rather, the conservation narrative is deployed in ways that mask that the primary implication of the securitization of farmed caviar production has been the creation of opportunities for intensified accumulation of capital, rather than a significant conservation impact.

Caviar producers explained that they increasingly attend to the biology, physiology, and behaviours of their captive sturgeon in order to ascertain how to most effectively target farming interventions so as to achieve greater caviar yields in shorter timescales. For example, caviar producer Oliya explained how their company had taken specific farming interventions and managed to produce caviar from beluga sturgeon in a significantly shorter timeframe than beluga sturgeon naturally produce caviar in the wild. She explained that:

In the Caspian Sea beluga become mature between 20 and 22 years old. So here, now we can get maturity between 10 and 14 years old. So it’s much less… Want to know why? Because we can get the temperature of the water all the years the same. And also, we can get them the right food. It’s two things mainly. The right temperature and the right food. And also to have the right place. We have some pools, and inside of these pools are only four or five sturgeon. We provide the right place so growing up is easy![[185]](#footnote-185)

To this extent, caviar producers seek to foster the reproductive capacities of sturgeon so that they reach maturity in captivity - and produce caviar- earlier than in the wild. They do so by experimenting with factors including: water temperature; lighting; water velocity and flow; sturgeon feed; and population density in pools. Making these interventions is presented as a way to reduce the resources and financial investment typically required to produce caviar. It is hypothesized that this could significantly reduce the price of farmed caviar and thereby undercut the price of poached wild caviar – a factor identified by Tensen (2016) as necessary for supply-side farming initiatives to have a demonstrable conservation benefit. Although as discussed previously, the likelihood of farmed caviar undercutting the price of poached caviar is unclear, and even so may not reduce demand for wild product.

Another option that caviar producers are experimenting with in order to intensify caviar production, is the hybridization of sturgeon species. Sturgeon farmer Ethan explained that he’d witnessed an increasing trend towards hybridization of sturgeon in the European market, inspired by the successes of Chinese experimentations in creating caviar from crossbreeding sturgeon:

So what they’ve done now is they’ve started crossbreeding. So they’ve been doing this for donkey’s years, but the Chinese are now really good at this. If you breed a Siberian (*A.baerii*) - which can give you eggs in six years - with a Beluga (*Huso Huso*) - which will give you eggs in fifteen years - well if the female is *Baerii* (Siberian), then there’s more chance that you will get the eggs younger. If the male is the dominant, the large fish, and the egg production bit is the female, you could get the eggs younger. So you might get eggs in seven years… And yeah, so the farms are really going hell-for-leather experimenting with these different kind of sturgeon and crossing and all this kind of thing, **because they need to get the eggs as quickly as possible’** (emphasis added)[[186]](#footnote-186)

Some caviar producers have also manipulated the biological conditions of sturgeon by experimenting with alternative ways of producing caviar, which are said to be more ‘sustainable’ and ‘ethical’ yet continue to promise consistent yields. For example, some production facilities are using ‘no-kill’ caviar production methods. This techno-mediated process firstly entails giving the sturgeon an ultrasound scan to check the readiness of the eggs. If the eggs are deemed ready, then a signalling protein is administered to the sturgeon in order to stimulate ovulation, before the eggs are massaged or ‘milked’ from the sturgeon a few days later. Proponents of this method of caviar production explained that caviar can be harvested again from the same fish every one to two years, and that they expect the sturgeon will be able to produce eggs for many years – although exactly how long is undetermined, as there is not a precedent for this farming method given that sturgeon are usually killed to harvest caviar.

Advocates of the ‘no-kill’ production method state that “conservation is at its heart”, and therefore herald the process as being “revolutionary – not just ethically but also in operational and cost terms”[[187]](#footnote-187). The reduced operational costs mean that in theory, the ‘no-kill’ caviar can be sold at a competitive price, which again rests on the imperfect assumption that cheaper farmed caviar will displace demand for wild caviar. Furthermore, those adopting ‘no-kill’ production methods presented their operations as having a conservation strategy, in that that they have plans in place to release ‘retired’ adult fish that no longer produce caviar, into registered conservation areas in Hungary, Romania, and Bulgaria. However, this ‘conservation’ strategy is problematic for a number of reasons. Firstly, the release of non-native captive-bred sturgeon species into fragile ecosystems could have a damaging ecological impact, including out-competing native sturgeon species for food and habitat. Moreover, if the fish are ‘retired’ when they are unable to produce caviar, then they will be unable to reproduce in the wild and therefore have little conservation value. Finally, captive-bred sturgeon may be unable to survive outside the farm environment. Irrespective of these criticisms, the conservation narrative is deployed as a ‘green pretext’ (Ojeda, 2012) to pursue intensified production methods which manipulate the biological conditions of farmed sturgeon in order to produce more caviar, and ostensibly increase the security of wild sturgeon.

Similar interventions into the environmental and biological conditions of nonhumans have been witnessed in other eco-securitization processes directed at species such as jellyfish. Johnson (2015) examines how jellyfish are variably enrolled as subjects of eco-securitization, and describes how scientists speculate about the ways in which threatening populations of jellyfish can be governed – and if necessary eliminated - by manipulating their environmental and biological conditions. In the context of this research, farmed sturgeon are presented as “good ecological citizens that perform ‘services’ we deem conducive to lived environments” (Johnson, 2015: 56); and so the practices outlined above are predicated upon effectively intensifying and optimizing the ecological ‘services’ that farmed sturgeon can carry out. As a result of the discursive securitization of these farming practices, farmed sturgeon effectively become enrolled as more-than-human security actors. Thus, in a similar vein to Johnson’s (2015) suggestion that the practices of eco-securitization directed upon and through jellyfish “acknowledge these seemingly otherworldly organisms as an integral and agential (if not mindful) part of the unfolding of the ecologically precarious present” (ibid: 69); the discursive securitization of the practices of caviar production, similarly foreground farmed sturgeon as a central actor in sturgeon conservation efforts.

Thus, the imperative to “get the eggs as quickly as possible”[[188]](#footnote-188) underlies the various practices that caviar producers choose to undertake and discursively frame in security terms. Caviar producers increasingly intervene with the environmental and biological conditions of sturgeon in different ways, in order to optimize and intensify caviar production, as an apparent conservation-security mechanism. Oliya explained that the modus operandi behind her company’s intensification of caviar production, was to “try to go everywhere and to be with the fish from the beginning to the end… it’s all really to preserve the sturgeon. How? To focus on the production. To reproduce. To have more and more product”[[189]](#footnote-189). In other words, Oliya pushed the green narrative that intensifying their production practices is driven by a motivation to preserve and secure sturgeon. However, in practice there is little tangible evidence proffered by these enterprises to demonstrate that there is a positive conservation impact arising from the intensified practices of farmed caviar production that they pursue. Thus, conservation may be mobilised as the ‘green pretext’ (Ojeda, 2012) to enable and justify the discursive ‘respatialization of security’ (Johnson, 2015) into the practices of farmed caviar production; but in analysing the implications of this securitization, I argue that the primary implication appears to be the emergence of new opportunities for capital accumulation, rather than any tangible conservation benefit.

### 6.2.3 Securitized accumulation

Colombino and Giaccaria (2016) suggest that issues of biopolitics and capitalism have become increasingly intertwined, in ways that have ushered in a new phase of capitalist accumulation known as ‘biocapitalism’. They argue that biocapitalism pursues a “full integration of life and capital into complex architectures of control and ownership” (ibid: 1044); and in developing a more-than-human analysis of biocapitalism, they point to the fact that the lives and deaths of nonhuman animals are central to this mode of production and capital accumulation. Colombino and Giaccaria (2016) argue that what is specifically novel about this era of capitalist development, is how the ‘molecular turn’ and ‘informational revolution’ have dramatically reconfigured the ways in which humans intervene and shape the bodies of nonhumans at the micro-level, in order to optimise them for production and to transform them into life-based commodities and services that are legally patented (ibid: 1050). This is evident in the caviar industry, where the emergence of alternative methods of producing caviar such as the ‘no-kill’ technique discussed previously, has reconfigured sturgeon and caviar as subjects of legal concerns, thereby “regulating them as a form of ‘biocapital’” (Johnson, 2015: 71).

For example, the ‘no-kill’ caviar production method was created – and has been patented – by an academic from the Alfred Wegener Institute for Polar and Marine Research (AWI) in Germany. To this extent, caviar companies wishing to use this particular production method must apply and pay for a license costing $10,000. At the time of conducting fieldwork, only one caviar farm in the world was licensed to use this caviar production method. The owners of this farm explained that they had recently returned from Germany where they had renegotiated the terms of the license, so that “we will then be licensing other farms around the world for the next 5-7 years… Like franchising”[[190]](#footnote-190). The farm owners explained that their plan to franchise included creating a training package and support programme to guide other farms through the process of sturgeon farming and caviar production, whilst simultaneously creating a stream of income for themselves:

You know if there’s a hundred farms that start producing caviar [in this way], how am I going to make any money? So we’re putting together a pack so that we’ll actually be getting some money out of each one of those farms[[191]](#footnote-191).

According to the company website, the cost of joining their programme includes 20% equity in the franchised farm, and a quarterly royalty/administration charge based upon the caviar output of the franchised farms. Their plans to franchise appear to have come into fruition since I undertook fieldwork. The company website states that the caviar production process is now licensed to farms in the UK, Brazil, and Ireland; with the farms operating as a group under the guidance of the company that was originally licensed to carry out this patented caviar production method.

The company representative I interviewed, was adamant about the fact that their operations are primarily driven by a conservation ethos and have a conservation value. Irrespective of whether this conservation ethos translates into practical conservation value, the ethos appears to serve as a ‘green pretext’ (Ojeda, 2012) for the company to accrue capital. The company seeks to attract potential franchise partners whose ‘aspirations match’ with the conservation narrative they espouse. After attracting such partners, the company financially benefits from the enfolding of sturgeon and caviar into the structures of biocapitalism, namely: patent laws, international legal frameworks, and franchising.

Moreover, as outlined above, the push to ‘get the eggs as quickly as possible’ has catalysed the intensification of caviar production practices as part of the discursive process of eco-securitization. A result of this, is that the caviar production facilities require increasing numbers of sturgeon each year in order to meet their caviar production targets. However, as sturgeon can no longer be taken from the wild for brood-stock[[192]](#footnote-192), they must be bred in captivity. To avoid congenital issues resulting from cross-breeding, the farms must ensure genetic diversity amongst the mature sturgeon individuals they use for breeding purposes. To this extent, the genetic make-up of sturgeon has become a lucrative form of biocapital - or “genetic capital” (Colombino and Giaccaria, 2016: 1049). Indeed, the genetic profile of a sturgeon has become a ‘lively commodity’ (Collard and Dempsey, 2013; Barua, 2016), and opportunity for capital accumulation in the midst of the securitization of farmed caviar production.

For example, sturgeon farmer Danut explained that over a number of years he has amassed “the Romanian genetic pool of sturgeons. I have thousands and thousands of sturgeon… So I have the genetic reserve if something happened in the Danube”[[193]](#footnote-193). He framed his efforts to build this genetic reserve of over 50,000 sturgeon as a securitized conservation strategy, and part of a restocking initiative he was involved in. However, he explained that the Romanian government had subsequently terminated their contract with him for the on-going sturgeon-restocking programme, apparently due to a lack of funds[[194]](#footnote-194). As such, Danut now accumulates capital alongside caviar production, by commercially trading in the genetic material of his sturgeon stocks. This includes producing sturgeon milt and sturgeon fingerlings for commercial trade, under the ‘green pretext’ (Ojeda, 2012) of establishing a ‘genetic reserve’ of sturgeon in the event that they may become extinct in the Danube region of Europe.

Thus, farmed caviar production has undergone a discursive securitization, which in turn stabilises the narrative that farmed caviar production is a conservation tool. This process has further enmeshed farmed caviar production into the structures of biocapitalism, whereby the conservation-security narratives have heightened the ways in which sturgeon are refigured as both life-based commodities and security actors. In sum, the policy move towards farmed caviar production as a supply-side ‘conservation’ tool, has created opportunities for capital accumulation that are realised through securitized discourses and practices. These securitized practices intervene with and commodify the bodies of farmed sturgeon under the ‘green pretext’ (Ojeda, 2012) of conservation; yet the primary outcome of securitization appears to be capital accumulation. Indeed, a representative of the World Sturgeon Conservation Society speaking at the 9th Aller Aqua International sturgeon conference, reminded attendees that although farmed caviar production could aid conservation, ultimately “Aquaculture is a business to make profit. Not a charity club”[[195]](#footnote-195). In line with this, I have demonstrated that the primary implication of the securitization of farmed caviar production has been the emergence of new opportunities for biocapitalist accumulation; although this is masked from view by the intransigent narrative that securitizing farmed caviar production has a conservation benefit. To this extent, I argue that farmed caviar production represents an example of ‘accumulation by securitization’ (Massé and Lunstrum, 2016), whereby the capital accumulation is both enabled and intensified by the overtures made to farmed caviar production having a conservation-security impact.

## 6.3 More-than-human politics of securitized caviar production

Finally, in their examination of the conservation-security-accumulation nexus operating in the Mozambican borderlands, Massé and Lunstrum (2016) argue that accumulation by securitization often results in the disposession and opression of vulnerable communities. In the context of my own research, the policy move towards farmed caviar production has arguably resulted in the dispossession of fishing communities in EU sturgeon range states (as discussed in chapter four). Such fishing communities have typically gained no economic benefit from farmed caviar production as a form of conservation based capital accumulation. Furthermore, building on the more-than-human theoretical framework of this thesis I highlight how accumulation driven by the securitization of farmed caviar production, also results in forms of more-than-human dispossession and opression. This I argue is an overlooked implication of the policy move towards farmed caviar production; and so I broaden the lens of analysis to examine the impact of the conservation-security-accumulation nexus upon farmed sturgeon.

As discussed previously, in framing the securitization of caviar production as a conservation strategy, farmed sturgeon are refigured as security actors through techno-mediated farming interventions. In optimising farmed sturgeon for intensified caviar production the fish are seen to limit the eco-security threat posed by the potential extinction of wild sturgeon. On the surface, the securitization of farmed caviar production therefore represents a progressive more-than-human approach to security. Incorporating farmed sturgeon into the security agenda “decentres the human as the single bottom-line of security” (Cudworth and Hobden, 2017); thereby recognising that the security of human lives is inherently intertwined with the ‘security’ of other nonhuman lives and environments (Cudworth and Hobden, 2017). However, drawing on Mitchell (2017) who points to the “double-edged sword of making security ‘more-than-human’”(13), I argue that enfolding farmed sturgeon into the securitization of farmed caviar production is not a progressive step towards a more expansive conceptualisation of security. On the contrary, the securitization of farmed caviar production demonstrates that “simply extending the logics of security ‘beyond the human’…threatens to compound regimes of biopolitical control” (Mitchell, 2017: 13). In other words, I argue that the ‘green pretext’ underlying the securitization of farmed caviar production, serves to shield from view some of the ways that farmed sturgeon are subjugated to the demands of capital accumulation. There are in fact a number of ethico-political issues and grey areas inherent to the treatment of sturgeon in farmed caviar production; but these issues are rendered invsible by the powerful narrative that farmed caviar production is a conservation panacea for sturgeon.

For example, sturgeon farmer and caviar producer Ethan acknowledged that the securitization of the physical infrastructures of caviar enterprises means that the killing of farmed sturgeon is largely hidden from view: “people don’t see this bit where the fish gets killed… the industry know that behind those doors is never shown anywhere… where the killing happens, yeah that’s taboo basically”[[196]](#footnote-196). In describing some of the killing processes that he had witnessed at other caviar production facilities, Ethan recounted seeing sturgeon handled in ways that caused significant injuries to the fish, before being killed in what he denounced as inhumane methods. He expressed his frustration at the disconnect between the conservation ethos that farmed caviar production apparently represents, and the treatment of farmed sturgeon in some aquaculture facilities. However, the nature of farmed caviar production is largely opaque and hidden from public view due to the securitization processes outlined previously. As such, there is limited public discussion around the ethics of farmed caviar production in comparison to debates around the production processes of other luxury food items, such as foie gras or veal. Part of the reason for the lack of engagement with the ethics of farmed caviar production is, I argue, due to how security and conservation narratives coalesce around caviar. The securitization of caviar production is pursued under the ‘green pretext’ (Ojeda, 2012) of sturgeon conservation; and this conservation narrative effectively renders any questions regarding the ethics of farmed caviar production invisible, as the focus remains on the “services” that farmed sturgeon provide as “good ecological citizens” (Johnson, 2016: 65).

Thus, an overlooked more-than-human implication of the securitization of farmed caviar production, is how this process diverts attention away from the ethics of sturgeon farming. The prevailing view that farmed caviar production is a conservation panacea for endangered wild sturgeon, justifies processes of securitization that may on the surface appear to be progressive. However, this discussion has pointed to the fact that securitization can render ethico-political issues related to caviar production invisible, and thereby mask the ways that the security-conservation-accumulation nexus at work in farmed caviar production overwhelmingly objectifies farmed sturgeon. Thus, in higlighting the more-than-human ethics of securitizing farmed caviar production, this discussion points to the fact that “there are strong critical reasons to resist existing drives to envelop more and more aspects of the ‘more-than-human’ within existing security discourses” (Mitchell, 2017: 13).

## 6.4 Conclusion

This chapter engages with the more-than-human politics surrounding the discursive and material securitization of farmed caviar production in the European Union. In this chapter I argue that the securitization of farmed caviar production is an overlooked outcome of the caviar trade regulations; and I analyse the political implications of this securitization, arguing that the policy move towards farmed caviar production has fostered ‘accumulation by securitization’ (Massé and Lunstrum, 2016). Thus, in analysing: a) the narratives that catalyse the securitization process; b) how this securitization process manifests physically through material infrastructures and discursively imbues production methods; and c) the political implications of the securitization process; I ultimately conclude that sturgeon conservation is used as a ‘green pretext’ (Ojeda, 2012) for securitizing farmed caviar production, and demonstrate that the primary implication of this securitization is the creation of opportunities for capital accumulation, rather than indicating a tangible conservation benefit. In fact, I argue that the conservation benefit of securitized caviar production is largely unclear, and remains a policy grey area.

In this chapter I highlight how restrictions on wild harvest of sturgeon for caviar, has resulted in farmed caviar production being promoted as a conservation policy move in the EU. Linked to the policy support for farmed caviar production is the emergence of a powerful narrative that positions farmed caviar production as a conservation panacea for sturgeon. As a result of this narrative, farmed caviar production has become entrenched as a geopolitical-ecological conservation discourse in the European Union. However, I argue that the conservation narrative sustaining this policy move is riddled with gaps and grey areas. In particular, the narrative overlooks a number of important socio-political-economic factors that must be integrated into any sturgeon conservation strategy. In fleshing out these gaps and adding greater nuance to the grey areas in the narrative, I demonstrate that the conservation potential of farmed caviar production is unclear, and subsequently raise questions about whether this policy move represents a conservation panacea for sturgeon in the EU.

However, given that the debatable conservation potential of farmed caviar production is largely absent from public or political scrutiny, this policy move has gained traction and produced other unexpected political outcomes. In particular, I argue that the overwhelming implication of this policy move (and the narrative underlying it), has been the securitization of farmed caviar production. This refers to how caviar production in the EU has been infused with security logics and made into a conservation-security matter. This is exemplified in the securitization of the physical infrastructures of sturgeon farms and caviar production facilities, coupled with the discursive securitization of intensified farming practices. I demonstrate that this process have been enabled by, and justified under the ‘green pretext’ (Ojeda, 2012) of sturgeon conservation.

In examining the securitized spaces and practices, I highlight how proponents of the conservation narrative, have simultaneously pushed “the discourses and practice of securitization into new spaces and into the bodies of nonhuman organisms” (Johnson, 2015: 61). This ‘respatialization of security’ I argue, has created opportunities for capital accumulation, which are both contingent and reliant upon the on-going securitization of farmed caviar production. To this extent, I argue that the securitization of farmed caviar production is an example of ‘accumulation by securitization’ (Massé and Lunstrum, 2016).

Thus, the policy move towards farmed caviar production has resulted in the complex intertwining of conservation-security-accumulation narratives and strategies in the EU. In engaging with the implications of this ‘accumulation by securitization’ from a more-than-human perspective, this chapter problematizes how farmed sturgeon are brought under the remit of security logics and technologies. Rather than seeing this as a progressive development, I argue that the securitization of farmed caviar production objectifies farmed sturgeon, and can result in farming practices that are ethically questionable. However, there is little ethical debate about farmed caviar production methods, as the powerful narrative that sturgeon farming is a conservation panacea combined with the securitized infrastructures of the production facilities, render such ethical issues largely invisible.

In sum, this chapter highlights the gaps and grey areas in the narratives sustaining farmed caviar production as a conservation policy move in the EU. I demonstrate that an overlooked geopolitical-ecological impact of this policy move has been the securitization of farmed caviar production. This securitization is facilitated under the ‘green pretext’ (Ojeda, 2012) of conservation. However, there is more tangible evidence of the securitization process creating new opportunities for capital accumulation, rather than having a demonstrable conservation impact for sturgeon in the EU.

# Chapter 7: EU security and illegal caviar trade: Contested geopolitics of securitization

## 7.0 Introduction:

This chapter examines the contested geopolitics of the securitization of illegal caviar trade in the European Union. Securitization refers to “the way that issues are described or remade as security threats” (Elliott, 2016: 69); and examining how this process unfolds in relation to wildlife crime issues has “become a prominent feature of public policy debate, regulatory outcomes and dispute within the research and NGO communities” (ibid: 68). In this chapter I analyse how the language and practice of security variably manifests in responses to illegal caviar trade in the EU. I build upon the arguments made in chapters four and five of this thesis: that gaps and grey areas in caviar trade regulations have sustained illegal caviar trade under new guises. Taking this argument further, I analyse the security implications of the transforming illegal caviar trade dynamics in the EU. I argue that the caviar trade regulations have caused a shifting of how illegal caviar trade is discursively framed in the security landscape of the EU. In line with O’Lear (2018) I illustrate that references to security are deployed to stabilise particular geopolitical-security narratives, whilst marginalising others; and in the process examine how these security narratives justify diverging forms of action - or inaction - around the issue of illegal caviar trade in the EU.

On the one hand, security concerns associated with illegal caviar trade are dissolving at the EU policy level. On the other hand, heightened security narratives and practices materialize in sturgeon range states in ways that challenge the dissolving discourses and processes taking place at the highest EU policy level. I analyse the securitized narratives and responses to illegal caviar trade within Romania, and reveal that they not only challenge the dominant EU security framings but also compete with each other. This points to the complex power geometries at work within the EU, which shape how the security implications of illegal caviar trade are understood; and also reveal which security narratives are contested, marginalised, or silenced entirely.

The security risks associated with illegal caviar trade in the Caspian Sea region have been reported by a number of social scientists (Shadrina, 2007; Zabyelina, 2014; van Uhm and Siegel, 2016). These accounts portray the Caspian Sea as a securitized geographical space where militarized ‘caviar mafia’ groups clash with law enforcement officials and each other (Ermolin and Svolkinas, 2016). The extent and organised nature of sturgeon poaching has been called “biological terrorism” and is said to pose a “genuine threat to regional security” (Shadrina, 2007: 73). In the contemporary security landscape in the Caspian, poachers are said to be “way better equipped than ten years ago”[[197]](#footnote-197); and organised criminal groups continue to operate with relative impunity in the region (Zabyelina, 2014; Ermolin and Svolkinas, 2016; van Uhm and Siegel, 2016;).

In contrast, much less is documented about the security dimensions of illegal caviar trade within the European Union. It is recognised that illegal caviar trade in the EU has links to organised crime (Kecse-Nagy, 2011; van Uhm and Siegel, 2016) and corruption (Musing *et al,* 2019). These links carry with them implicit references to security. But on the whole, these studies do not explicitly analyse the security implications of illegal caviar trade in the EU, or consider how security concerns influence policy and enforcement responses to illegal caviar trade in the EU. This chapter therefore engages with security narratives and securitizing responses as a useful way of analysing the contested geopolitical implications of the EU caviar trade regulations.

In line with the theoretical framework of this thesis, I examine how contrasting visions of ‘security’ are used to stabilise and support particular environmental-geopolitical policy and enforcement interventions in the EU (O’Lear, 2018). I interrogate the multi-scalar geopolitical implications of these interventions, and ask “what is being secured and for whom?” (O’Lear, 2018: 172). In doing so my analysis foregrounds the unequally distributed impacts of securitized interventions. Moreover, from a more-than-human perspective, this chapter considers how sturgeon are variably integrated into, or marginalised by, the competing security discourses and responses materialising in the EU.

In sum, I examine how security actors differentially frame illegal caviar trade as a security issue; and analyse what security-oriented responses the contrasting security framings elicit and subsequently achieve. I focus analytical attention on explaining ‘how security problems emerge, evolve, and dissolve’ (Balzacq, 2011) in the context of regulating sturgeon crimes in the EU. Dissolving security responses include EU institutions and enforcement bodies delisting caviar as a CITES priority. Evolving security responses include NGOs moving further into the security arena and pushing for operations informed by surveillance techniques. Emerging security discourses develop arguments about ‘ecological security’, but are silenced by state actors pursuing alternative security agendas. Underwriting the traction and effectiveness of these contested security framings and responses, are power dynamics that determine whose or which securitizing moves are successful.

In section 7.1 I assess how the security implications of illegal caviar trade have been downgraded via ‘dissolving’ security discourses and actions pursued by EU institutions. I argue that the dissolving securitizing moves are geopolitically dominant, but do not reflect the nuanced security realities on the ground in sturgeon range states such as Romania. In Section 7.2 I explore how gaps and grey areas in regulations have catalysed the evolution of security discourses and conservation surveillance responses to the threat posed by organised crime in Romania and the wider Lower Danube and North-West Black Sea region. These securitizing moves challenge the ‘dissolving’ security narratives deployed by EU institutions. In section 7.3 I draw attention to the existence of security discourses focused upon ‘ecological security’; but show how these securitizing discourses are silenced by the security agenda of the Romanian state. Finally in section 7.4 I reflect on the contested geopolitics of security playing out around illegal caviar trade in the EU; and conclude that power geometries ultimately enable some securitizing processes to gain traction whilst others are silenced.

## 7.1 Illegal caviar trade in the EU: a dissolving security concern?

Previously high levels of criminality served to configure illegal caviar trade as a security threat in the EU. Examples abound of those working to implement caviar trade regulations in the EU being threatened or intimidated by groups and individuals suspected to be part of ‘caviar mafia’ affiliations. NGO representative Rose, explained that she has “heard from colleagues working on the ground in sturgeon conservation, that they’ve been threatened before. I’ve heard of a story of a person who has even been killed”[[198]](#footnote-198). Similarly researcher Yvar listed numerous cases of threats, violence and extortion taking place within Europe: apparently committed by organised criminal groups and directed at officials targeting illegal caviar trade. For example he noted cases in which caviar was confiscated in Geneva and the Netherlands, and CITES officials were threatened; a prosecutor in France who was threatened by criminal groups; and a Dutch law enforcement officer who witnessed unknown Russian individuals taking photographs and engaging in other intimidating activities outside his home. Joseph tests caviar to provide evidence for criminal prosecutions, and summed up his own concerns about the security implications of illegal caviar trade: “if there’s money involved there will be people who’ve got to protect something at all costs... There could be real danger”[[199]](#footnote-199). Thus, the spectre of organised crime fed into a sense amongst some interviewees that illegal caviar trade was historically, and potentially still is, a security risk in the EU.

The tightening of caviar trade regulations in the EU in 2006 and the organisation of the European Commission enforcement workshop on illegal caviar trade in June of the same year, coincided with generally heightened concerns about about ‘sturgeon wars’ (Shadrina, 2007) taking place in the Caspian Sea region. Given that the Caspian Region was the primary source of caviar imported into the EU both legally and illegally – for example over 40% of all EU seizures of caviar originate from Russia (van Uhm, 2016a:52) – the sturgeon wars in the region could be viewed as a security threat that could spillover into the EU. Indeed the proliferating reach of caviar mafia networks into and within the EU was noted by Yvar who said that “the networks that are involved in Russia, trading it from Russia into Europe, are still active”[[200]](#footnote-200). As such, the role of organised crime in illegal caviar trade is described as “not exceptional”, and as having the potential to “result in state security threats” (van Uhm, 2016b: 155). In this regard, the tightening of caviar trade regulations in the European Union arguably constitutes part of a securitizing process designed to protect the EU from the security risks associated with caviar trade and organised crime, and reduce the potential for spillover effects of the ‘sturgeon wars’ in the Caspian Region. However, the high-level political concern about the security implications of illegal caviar trade in the EU appears to have waned over recent years.

As discussed throughout the previous empirical chapters, the implementation and tightening of the caviar trade regulations in the European Union has prompted a wholesale shift in the caviar industry to farmed caviar production. This has coincided with declining seizures of caviar and declining intelligence about the involvement of organised criminal groups in driving illegal caviar trade in the EU. These dynamics have contributed to a sense amongst policymakers and some enforcement officials in Western European states, that regulatory frameworks have dramatically destabilised organised caviar crime, and thereby reduced the security risks posed by illegal caviar trade into and within the EU. As described in chapter four, Western European enforcement officers say that illegal caviar trade “is totally drying up as an issue”[[201]](#footnote-201). However, I demonstrate in chapter four that these conclusions are built upon flawed data and flawed assumptions that equate declining seizures with declining criminality. Nevertheless, the declining seizures and intelligence on criminality have led to a decision made by the European Commission to downgrade caviar as an EU CITES priority area. This decision represents part of a wider process initiated at the highest level of EU politicymaking in recent years, to discursively dissolve and deconstruct illegal caviar trade as a security issue.

The downplaying of the contemporary security implications of caviar trade in the EU seems at odds with wider EU efforts to emphasise the links between wildlife crime and security; and appears even more striking when notable NGO representatives such as Rose, stress that “there is certainly a security dimension”[[202]](#footnote-202) to caviar trade. Indeed, in the contemporary geopolitical climate there is a significant focus on highlighting and deconstructing the links between wildlife crime and security. This is particularly prevalent in the EU. The European Commission in particular is investing significant resources across a range of departments, including DG-ENV[[203]](#footnote-203), DG-DEVCO[[204]](#footnote-204), DG-REGIO[[205]](#footnote-205) and the European External Action service (EEAS)[[206]](#footnote-206), to understand and tackle the security implications of wildlife crime. Environmental crime (including wildlife trafficking) was codified as one of the EU’s priority areas for the 2018-2021 policy cycle to tackle serious and organised international crime[[207]](#footnote-207). Moreover the 2016 EU Action Plan against Wildlife Trafficking outlines objective 3.3, which is to: ‘Address the security dimension of wildlife trafficking’. The Action Plan against Wildlife Trafficking does not define what is meant by ‘security dimension’; but Ulmer, a representative of DG-ENV, explained that the European Commission takes “a broad understanding of the term security. So it’s not just terrorism, it’s also organised crime and even broader than that... human security for sure”[[208]](#footnote-208).

This then begs the question: why is declining attention being given to the security dimensions of illegal caviar trade in the EU? When discussing this issue in the context of the contemporary EU focus on the security-wildlife crime nexus, Yvar suggested that the example of caviar trade was being simplistically mobilised to fit the EU geopolitical agenda. For example, the wholesale shift to aquaculture and declining caviar seizures, may be deployed as indicative of how regulatory mechanisms and concerted enforcement can produce systemic change and dismantle links between wildlife crime and security. Rose similarly acknowledged that “it is important and politically beneficial to say ‘we are doing something about [organized] crime’”[[209]](#footnote-209), and caviar trade can be used as an example. Indeed, when questioned on this, Ulmer reinforced the European Commission stance on caviar and declining organised crime, emphasising that “there’s now a lot of legal trade, and it’s coming from aquaculture facilities. At least the majority of it we believe. Then the issue of illegal trade has been replaced”[[210]](#footnote-210). Yvar suggested that there is a geopolitical motivation in disseminating this simplified version of reality:

They have interests to communicate to the outside world that there are no problems at the moment... to focus on a discourse where caviar trade – illegal caviar trade – does not happen anymore; where it has become in the hands of legitimate traders; where there are good control mechanisms and so on... This is the ‘political reality’ I would say. And of course there is a reality how caviar trafficking takes place in the actual world[[211]](#footnote-211).

As such, any ongoing security implications of illegal caviar trade are masked by the dominant political narratives – discussed previously in chapter four - that frame illegal caviar trade in the EU as having been ‘replaced’.

I argue that power dynamics operating in the European Union have enabled EU institutions to dissolve illegal caviar trade as a security concern at the EU-level. In explaining the logic behind relegating caviar as a European Commission CITES priority, Ulmer said “if you know that it’s *a bit* of illegal trade in caviar, say ‘ok that’s a priority for the regions’, with the countries and the range states concerned”[[212]](#footnote-212). This narrative geographically isolates illegal caviar trade in the EU suggesting that it is contained within Romania and Bulgaria, and thereby small and localised in extent. This reduces illegal caviar trade in the EU to a regional conservation issue that is the responsibility of sturgeon range states to solve; rather than recognising illegal caviar trade as an EU-wide criminal issue with security implications. This rhetoric therefore reflects a lack of critical attention given to the broader geopolitics and political economy of the caviar trade within the European Union. No attention is given to interrogating how poaching dynamics in sturgeon range states are intrinsically connected to – and fuelled by - a demand for wild caviar in Western European member states. As such, an assessment of the security implications of the illicit caviar supply chain as it extends across Europe, is overlooked. This effectively absolves Western European Member States of their role in illegal caviar trade and related organised crime and security issues.

Europol similarly suggest that the issue of sturgeon poaching in the EU is small and geographically concentrated. However, in contrast they situated these poaching dynamics in the wider policitical-economy of EU illicit caviar trade. Europol wildlife crime expert Čelan, emphasised that “the biggest issue is illegal trade within the EU; this is more significant than the level of poaching. The illegal trade is happening widely in the EU, but poaching and impact on European biodiversity only affects a few EU countries”[[213]](#footnote-213). Indeed, Yvar confirmed that “still Europe is an important demand market... people have this feeling that we would like to have ‘the *real* stuff, the *wild* stuff’”, and so “there’s still criminal things going on in Netherlands, in Germany. And also the Polish border”[[214]](#footnote-214). This presents a more holistic reading of illegal caviar trade in the European Union and positions it as an international criminal issue, rather than solely a regional biodiversity conservation issue.

Thus, Čelan’s assertions challenge the narratives emanating from the European Commission, which give a narrow and selective view of declinining criminality in the caviar trade. These contrasting narratives give an indication to some of the power relations at work, which are shaping understandings of the illegal caviar trade crime-conservation-security nexus in the European Union. The dominant political framing situates illegal caviar trade as a problem of localised poaching, and therefore a conservation issue to be solved by EU Member States where poaching takes place. However, a less dominant security framing acknowledges the international and organised nature of trafficking in contraband caviar, which implicates and requires concerted action from all EU Member States and EU institutions.

The apparent ‘dissolving’ of illegal caviar trade as a security concern by the European Union is therefore an interesting anomaly, particularly as there has not been a widespread desecuritization of other wildlife crime issues by the European Union. In fact, as mentioned above, the EU is increasingly concerned about investigating the security implications of wildlife trafficking. DG-ENV in the European Commission are responsible for producing and implementing EU Wildlife trade policy, and Ulmer explained that their understanding of the wildlife crime-security nexus foregrounded organised wildlife crime as a security issue, because:

The most prevalent form of link with security, is the link with organised crime and corruption… where you find really hot-spots for wildlife trafficking, are also where you find the hot-spots for corruption, and where organised crime is really the big issue there[[215]](#footnote-215).

In line with this, the dissolving of illegal caviar trade as a security issue at the EU policy level seems somewhat misguided. The identification of Romania and Bulgaria as geographic hotspots for caviar trafficking, combined with indications that “corruption is playing a stronger role in these countries than in other parts of Europe”[[216]](#footnote-216), would point to a likelihood of caviar related-organised crime posing a security issue in these EU Member States. I argue that this is the case.

However, despite assurances that the EU is taking a broader view of security, it appears the high-level institutional priorities are aligned with tackling more spectacular examples of the wildlife trafficking-security nexus. This is in part shaped by the popular concern for charismatic megafauna including rhinos, elephants and tigers; and widespread media reporting focused upon the exponential increase in poaching of these species over the last decade. Further, high-profile polemical debates about the involvement of armed-militias and terrorist groups in poaching, has placed ivory and rhino horn firmly on the geopolitical agenda (Elliott, 2016). In contrast, sturgeon are hardly well-known species, and they do not garner public attention or affection in the same way as other species:

Sturgeon just aren’t sexy. Here’s a fish that’s facing just as severe threats as rhinos, elephants or whatever, and yet there’s a very limited number of NGOs paying this any attention. And certainly the public don’t give it any attention. And that’s understandable. Here you are, producing something for a luxury market, that’s not going to excite the public. That’s not going to capture their imagination and say ‘Oh God, yeah! Let’s go out and march down Whitehall on behalf of sturgeons!’[[217]](#footnote-217)

Thus, EU institutional energy and resources are directed at tackling more high-profile examples of the wildlife trafficking-security nexus, particularly in Africa[[218]](#footnote-218). Michael expressed his exasperation about changing policy directions, and a focus on a particular *type* of security threat, saying “this is part of the problem, the focus has simply come off that species [sturgeon]. The eye is off the ball. Goodness only knows what is taking place”[[219]](#footnote-219).

In line with this caviar producer Oliya, criticised how the centres of EU policymaking in Brussels and the Hague, posses a power to define and shape policy and security priorities whilst remaining geographically removed from the on-the-ground reality. She stressed that “the politicians, the people who work in the office, they see nothing”[[220]](#footnote-220) - implying that policymakers have neglected assessing the changing dynamics of illegal caviar trade and its security implications within the EU. NGO representative Sigrid also echoed this, expressing her sense that EU institutions are reluctant to scratch the surface of caviar trade for fear of unearthing complex issues with far-reaching security implications: “They just don’t want to have these problems and are like the three wise monkeys” [gestured hear no evil, see no evil, speak no evil][[221]](#footnote-221)

Thus, I argue that the prevailing belief that aquaculture has ‘replaced’ the issue of illegal caviar trade and associated criminality, proves to be a powerful ‘desecuritizing’ policy narrative that is reinforced by evidence of declining seizures of caviar in the EU. This aligns with an institutional focus on tackling more spectacular examples of the wildlife trafficking-security nexus; and as a result, the contemporary security implications of illegal caviar trade in the EU are not in the spotlight or high on the policy agenda. In fact, the implementation and expansion of EU caviar trade regulations has catalysed a discursive ‘dissolving’ of sturgeon crimes as a security threat in the EU. This results in the issue overwhelmingly being framed at the EU policy level as a localised conservation issue, rather than an organised crime and security issue which implicates all EU member states However, despite declining seizures, and even if the EU policy agenda overlooks the security dimensions of illegal caviar trade, the reality is that EU illegal caviar trade continues to pose security threats.

It was evident through my fieldwork encounters that the on-the-ground security dynamics associated with caviar trade and sturgeon conservation in sturgeon range states, were very different to the picture portrayed by dominant EU narratives. This points to the contested geopolitics of the securitization of wildlife trafficking in the EU. Through examining gaps and grey areas in caviar trade regulations, I show how existing security issues have evolved, and new security issues have emerged in Romania. However, I make the argument that although a number of contrasting security actors and narratives exist, typically they do not have the power to challenge hegemonic EU security portrayals, and only certain security framings are acted upon.

## 7.2 Contested Securities: evolving security threats in sturgeon range states

Caviar trade regulations have gaps and grey areas in design and implementation that have shifted how sturgeon crimes take place in the EU, and in particular in sturgeon range states such as Romania. I demonstrate how these shifting features of illegal caviar trade in sturgeon range states have security implications that are overlooked at the broader EU level.

Illegal caviar trade is variably framed to pose a security threat in Romania. In contrast to the ‘dissolving’ of illegal caviar trade as a security issue at the EU policy level, in Romania the security dimensions of caviar trafficking were framed in two significant ways. In this section, I analyse the domninant security framing, whereby interviewees focused on how regulatory frameworks – and gaps in these frameworks – have made the organised crime dimensions of illegal caviar trade evolve. This evolution is seen to create a national security threat. I show that this security framing generates distinct security oriented responses predicated upon conservation surveillance techniques. I argue that these responses have powerful implications for the (in)security of particular actors.

### 7.2.1 Evolving Security framings: Organised crime

Rather than a dissolving security issue, interlocutors in Romania suggested that illegal caviar trade and sturgeon poaching is an evolving threat to national and regional security, due to the apparent transnational links between illegal caviar trade and organised crime. Concerns about threats to national and regional security have produced security-oriented responses designed to dismantle sturgeon crimes in the country and neighbouring countries. I argue that the security framings and related responses that materialise in Romania, point to the fact that the caviar trade regulations have produced shifting security configurations in the EU rather than eradicating the security threats historically associated with illegal caviar trade. The securitized responses in this regional context, are more banal or mundane than the spectacular militarised or security-oriented responses witnessed in other global contexts where illegal wildlife trade takes place. Nevertheless, I demonstrate how these responses are a) shaped by evolving security framings; and b) draw upon logics of surveillance which are more commonly associated with policing or security sectors, but are becoming increasingly integrated into the repetoire of wildlife crime interventions pursued by NGOs. This discussion is therefore useful in illuminating the means by which a broad range of actors engage in modes of conservation that place ‘security’ front and centre.

The EU-funded LIFE[[222]](#footnote-222) project entitled: ‘*Sustainable protection of lower Danube sturgeons by preventing and counteracting poaching and illegal wildlife trade*’- more commonly referred to as ‘LIFE For Danube Sturgeons’ – is the pre-eminent sturgeon conservation project in Europe. Coordinated by WWF Austria, the 1.85 million euro[[223]](#footnote-223) project began in October 2016 and runs to December 2020. The project engages in activities designed to prevent sturgeon poaching and illegal caviar trade in six countries: Austria, Germany, Bulgaria, Romania, Ukraine, and Serbia. Whilst international in scope, the project involves specific in-country activities, which are managed by directors from each of the relevant WWF offices, along with support from additonal partners such as the Danube Delta Biosphere Reserve Authority (DDBRA) in Romania.

The project has proven to be a powerful ‘flagship’ programme designed to protect a ‘flagship species’ of Europe. In particular the project has developed a strong agenda setting role: by directing resources and energy to particular locations where poaching hotspots exist; and promoting specific interventions designed to reduce, counter, and bring attention to the ongoing issue of sturgeon crimes in Europe. The project has simultaneously shaped how illegal caviar trade is understood to function and present itself as a security issue in the EU.

The LIFE project has a focus on ‘governance’, recognising that “in many countries we work in... governance structures are weak. The legal system is not working as well as it is in Western European states”[[224]](#footnote-224). The project therefore aims to improve gaps in governance by strengthening the awareness and capacity of law enforcement bodies to respond to sturgeon crimes and enforce legislation. Weak governance in sturgeon range states was identified as a significant factor facilitating illegal caviar trade. Organised crime networks have responded to the caviar trade regulations by finding weaknesses in these regulations, in order to continue with caviar trafficking; and weak governance and enforcement of the regulations is one such gap. The criminal networks are said to have become increasingly impenetrable, and due to weak governance it is becoming very difficult to obtain information about the dynamics and structure of the networks involved. NGO representative Irini explained her certainty that there are organised criminal networks involved in caviar trafficking in Romania:

They are organised. And they became more organised after the big controls. Because they understood that they are easy to catch if they have everything on the table… It’s not easy [to infiltrate the networks] because you have to know the people… On the first market survey our person that was working with us managed to obtain this kind of [illegal] product and these people. But now we’ve tried 3 times, and it’s not easy. It’s hard to know who is behind it, because usually they have power. So nobody will tell you anything. Just stories.[[225]](#footnote-225)

The narrative that organised crime plays a significant role in orchestrating sturgeon poaching and illegal caviar trade in the Lower Danube and North-West Black Sea, has served to be a powerful securitizing narrative amongst NGOs. This narrative runs throughout the LIFE project, the wider WWF-network, and beyond. Moving beyond the regional focus of the Lower Danube, a wider WWF-Network ‘Sturgeon Strategy’[[226]](#footnote-226) was launched in 2017 to ‘foster synergies and cooperation’ amongst WWF offices and programmes with a common interest in sturgeon conservation and crime. The Sturgeon Strategy document situates organised crime as a central target of actions. Specifically, Objective 4 of the ‘Strategy to: Raise public awareness and political will to support implementation of the strategy’, outlines the aim that:

By 2020, legislative and enforcement authorities are **aware of the social, environmental and economic impacts, the links with organized crime** (WWF, 2017:4 emphasis added)

Following this, the Sturgeon Strategy also calls upon authorities to implement relevant international conventions that pertain to tackling serious organised crime, such as the UN Convention on Transnational Organised Crime (UNTOC) and the UN Convention Against Corruption (UNCAC). As such, the destabilising security implications of sturgeon crime are framed in terms of social, environmental and economic impacts. In particular, the Sturgeon Strategy dwells on the convergence between organised crime and financial crime, pointing to the need to apply criminal laws “concerning fraud, money laundering, tax evasion, and environmental and trade laws for fisheries crimes involving sturgeon” (WWF, 2017: 18). Thus, the Sturgeon strategy directly links organised crime to illegal caviar trade, suggesting that organised crime has myriad threat-multiplying effects on different aspects of national and regional security.

The framing of sturgeon crimes as a form of organised crime with security implications, has been taken up by other actors external to the LIFE project or wider WWF-network. The Danube Sturgeon Task Force (DSTF)[[227]](#footnote-227) was established in 2012 to support the EU Strategy for the Danube Region (EUSDR)[[228]](#footnote-228), and in particular the target ‘to ensure viable wild populations of sturgeon and other indigenous fish species by 2020’[[229]](#footnote-229). EUSDR via DSTF launched the ‘Sturgeon 2020 Action Plan’, outlining a strategy for sturgeon revival in the Danube. In a similar vein to the aims of the LIFE project, the Sturgeon 2020 Action Plan reinforces the need to improve coordination and capacity of law enforcement bodies in the lower Danube. The Sturgeon 2020 Action Plan suggests that measures to improve enforcement against sturgeon crimes, would align with and contribute directly to the EUSDR’s wider regional objectives, in particular priority area 11 on ‘security’. This priority area promotes activities organised around an aim to improve security, and tackle serious and organised crime and corruption in EUSDR countries. As such, NGOs and advocacy groups mobilise narratives that highlight a nexus between sturgeon crimes and organised crime, as a starting point for action. This serves to firmly cement sturgeon crimes as a perceived security threat in the Lower Danube and North-West Black Sea region.

Moreover, those involved in the caviar industry in Romania also framed the nexus between organised crime and illegal caviar trade as a security threat. In describing the structure of the organised criminal networks, caviar producer Danut suggested they operate “like a drug cartel”[[230]](#footnote-230). He explained that 90% of those involved are said to be poor fishermen, however:

The other 10%, they are those who organise the selling and the cover up if police are intervening and catching the fishermen. So it’s organised… It’s such a shame. Like with drugs. If someone goes to the police, [the] next day he is dead on the street[[231]](#footnote-231).

The comparisons to drug cartels and other forms of serious and organised crime, brought into stark relief the potential human costs and collateral damage associated with sturgeon crime in the EU. Yvar, a researcher who has worked in sturgeon poaching hotspots stressed the overlooked human security implications of the evolution of organised crime in these locations. He explained that “the emergence of more organised crime groups in this level also has a negative effect on the local people. Because the criminals use mines, they bomb rivers, so the local people cannot fish for other species anymore and so on. So the consequences in that context are complicated, for the local setting”[[232]](#footnote-232). Thus, violence, threatening behaviour, and even death, were not uncommon themes when participants were asked about the security implications of the trade.

The nexus between sturgeon crime and organised crime is variably positioned as an evolving threat to national and regional security by actors in Romania and the Lower Danube and North-West Black Sea region. Overall, NGOs such as WWF have suggested that illegal caviar trade “by organized crime in Europe poses a direct threat to the well-being, businesses, national institutions and local economies of European citizens”[[233]](#footnote-233). These framings present a counter securitizing narrative that challenges the dissolving of illegal caviar trade as a security issue at the EU level. As a result, there have been a number of responses promulgated to deal with sturgeon crimes in the region, which are imbued with and informed by security logics.

### 7.2.2 Evolving security responses: Organised crime

The increasing permeation of spectacular security oriented responses to conservation crises is well documented in critical social science. Securitized conservation practices have variably been called ‘green security’ (Kelly and Ybarra, 2016) and ‘green militarization’ (Lunstrum, 2014) referring to the proliferation of conservation methods informed by military-security logics, particularly in protected areas in the Global South (Duffy, 2014, 2016; Marijnen and Verweijen, 2016; Ybarra, 2018).

The securitization of conservation in the context of illegal caviar trade in Europe is less spectacular. Nevertheless, the evolving conservation practices are illustrative of how security logics and approaches from the policing and private security sector are increasingly pervading the conservation sphere globally (Massé *et al.*, 2020). I argue that in line with the concerns about security and organised crime outlined in the previous section, the proposed responses to sturgeon crimes are underwritten with a tacit support for techniques more commonly employed in the security and policing sector, such as surveillance and intelligence gathering.

As stated previously, WWF is positioned as the pre-eminent actor shaping agendas on sturgeon conservation and sturgeon crimes in the Danube region of Europe. Whilst improving enforcement activities is part of WWF’s agenda, they do not possess the legal recourse to engage in enforcement activities themselves. Irini explained:

It’s not on us to stop the poaching. The control bodies should stop it… Anyway, the law does not permit us to do that. We cannot do it, go there and say ‘No. You’ve done something illegal.’ We can’t stop it. We can report to the bodies that are doing the control, and say if we see something suspicious. But until now the important thing is to keep the subject in their agenda. They talk about it. The control bodies know about it and talk about it. Be aware of this problem, and maybe be more responsible in doing things about it.[[234]](#footnote-234)

By pushing to keep the issue on the agenda of the enforcement bodies, WWF have altered the enforcement landscape around sturgeon poaching and illegal caviar trade in Europe, shifting it towards more security oriented responses. For example, in pushing for ramped up enforcement against sturgeon crimes in Lower Danube countries, the LIFE project has donated an IP surveillance camera to Ukrainian Border Force. The camera is a stationary device that can rotate 360 degrees and move vertically, and transmits video footage in full HD format. Border guards manage the device through a smartphone or the internet, and the camera has been installed at a well-known poaching hotspot close to the Ukrainian-Romanian border[[235]](#footnote-235). The camera set-up has been modelled on an extensive surveillance initiative in Romania, where there is a whole system of video surveillance installed along the Black Sea coast[[236]](#footnote-236). NGO representative Melanie explained that the Romanian system has cameras installed every 5-6km, which capture and disclose instances of sturgeon fishing violations amongst other crimes including illegal immigration and drug trafficking.

The roll-out of these cameras represents an explicit example of ‘conservation surveillance’(Sandbrook *et al*., 2018) and illustrates that human imaging is developing as part of standard conservation practice (ibid: 501). Unlike camera traps deployed by researchers and conservation practitioners to collect images of endangered species, which may accidentally capture images of humans (human bycatch); the primary use of surveillance cameras at the Ukrainian-Romanian border, is catching instances of illegal sturgeon poaching. This is emphasised in the title of an online article celebrating the donation of the IP camera: “photo-shooting season on illegal sturgeon fishing is open”[[237]](#footnote-237). Moreover, NGO representaitve Melanie explained that “we signed a special memorandum with border police. In this document we agreed that this camera is used only for anti-poaching. Because this camera was bought from funds of LIFE project, we can use it only for preventing poaching”[[238]](#footnote-238). In this regard, the operation of this camera is specifically centred around collecting images of ‘poachers’.

Sandbrook *et al*. (2018) stress that practices of conservation surveillance carry social and political implications that need to be interrogated. In the case of the LIFE for Danube Sturgeons project, the WWF agencies involved are unable to conduct enforcement activities themselves. However through donations of cameras they are able to equip border force guards and other enforcement bodies with the high-tech and modern means to conduct their anti-poaching operations via a more security-oriented framework. Sandbrook *et al.* (2018) note that when “cameras are deployed by non-state actors (such as researchers or NGOs) they extend the authority in environmental governance beyond the state” (ibid: 501); and in this case WWF express authority to shape environmental governance in securitized ways.

Moreover, in providing the camera to border force, the partners of the LIFE project gain access to the footage that is produced – it is not solely restricted to the state enforcement authorities. This could be a positive development, as “in circumstances where governance systems of justice are weak or arbitrary, it is problematic to assume that images of people apparently breaking the law witll be used wisely and fairly” (Sandbrook *et al.,* 2018: 500); and so the oversight of an international NGO may better guide how state enforcement agencies use the images. However, discussions with representatives of the LIFE project raised more ethical questions about the “standards for using, sharing and storing images of people” (Sandbrook *et al.*, 2018: 502). It is acknowledged that the primary aim of the cameras is to discourage poaching and provide video material to be used in court. But, Melanie recounted discussions between all parties in the LIFE project, about other ways in which the footage could be used:

There was a big discussion between us: border force, project team, and also Danube Delta Biosphere Reserve Authority in the Danube Delta, Romania. We had a big discussion, and there was an idea about a Live Stream from this camera to some big place in [name of town]… Then everyone will see what’s happening on the river. Who is catching sturgeon[[239]](#footnote-239)

To date, a ‘Live Stream’ has not been implemented, as the team do not have the technological capacity to do so. Nevertheless, the nature of the discussion illustrates the evolving securitized responses to sturgeon poaching in the region, which promote the uncritical – and perhaps unethical – adoption and expansion of conservation surveillance techniques. These approaches are catalysed by concerns about protecting the state (broadly understood as businesses, national institutions, local economies and wellbeing of European citizens[[240]](#footnote-240)) from the security implications of organised crime.

Deploying conservation surveillance in aid of achieving the abstract notion of national or regional security, often hinges on the insecurity of other groups (Kelly & Ybarra, 2016). If the ‘Live Stream’ is implemented as outlined above, the identity of any individual recorded catching sturgeon, would be reduced to poacher and criminal. The camera footage would remove any context to the situation, or possibility of explanation. For example, Melanie differentiated between accidental poaching conducted by, “very poor people who catch the sturgeon during the herring pass upstream, from the sea to Danube. Bycatch’; and on the other hand, “special poachers, who are poaching especially only for sturgeons, with specific nets, specific other equipments”[[241]](#footnote-241). However the surveillance footage does not automatically distinguish between these groups and fishing motivations. Thus the implementation of a Live Stream carries with it many negative implications for poor fishermen who may become ‘human bycatch’ caught by the IP surveillance camera. The presence of cameras can infringe privacy and create fear (Sandbrook *et al.,* 2018): those engaging in herring fishing may be afraid to do so, for fear of sturgeon bycatch and subsequent punishment from authorities. At the time of writing, I was not aware of any substantive evidence to suggest that the use of surveillance cameras in the Romanian-Ukrainian border has had any measurable impact on organised crime, sturgeon poaching, or alleviated any of the security concerns in the region. On the contrary, the surveillance cameras may produce greater insecurity for the well-being of local communities.

Thus, the discussions about implementing a Live Stream of camera footage are enmeshed in a wider troubling trend and mentality in conservation: one which pursues actions that serve to dehumanize suspected poachers and remove their actions from any socio-economic context or explanatory factors. Moreover, intervention seems at odds with some of the other prominent goals of the LIFE project: namely, to invest energy and resources in building trust and relationships with fishing communities. WWF “are working with them and helping them feel heard and listened to”[[242]](#footnote-242); but also watching them remotely via surveillance cameras. Whilst the cameras may prove to be effective in discouraging poaching in the long-term, there is a need to question even mundane expressions of security deployed via the medium of surveillance cameras. These cameras could be alienating to the target communities, and ultimately counterproductive to the aims of engaging and convincing these communities of the merits of sturgeon conservation[[243]](#footnote-243). Indeed a respondent in Sandbrook *et al*’s (2018) study on the social implications of camera traps sums up the alienating potential of conservation surveillance: “conservation is only successful if local people are on your side - if you place cameras to watch them, they feel that you are against them and will do more to harm wildlife…just to get back at you” (2018: 500). These potentially harmful dynamics of conservation surveillance need to be fully considered before uncritically adopting a Live stream system.

The partners in the LIFE project have also developed other initiatives that may not outwardly appear as security oriented responses to sturgeon poaching and illegal trade, but on closer inspection appear to be informed by security logics such as surveillance and intelligence gathering. One such enterprise is the Sturgeon Watchers scheme, a programme that recruits University students to voluntarily engage in a number of activities designed to protect sturgeon during periods of spawning, when poaching is normally most heightened. The activities include: studying fish migration; tagging juvenile sturgeon; information exchange and awareness building with fishing communities; educational public engagement events; and enforcement patrols with the relevant authorities.

I suggest that there are also underlying security logics at play, which drive the scheme. Sturgeon Watchers is not solely about watching sturgeon: it is also implicitly predicated upon establishing a presence to watch fishing communities (via patrols and control missions), and simultaneously designed to surveil border force guards and other enforcement authorities in order to keep them accountable for their actions. The implicit surveillance of enforcement authorities by the Sturgeon Watchers is necessitated by a climate where multiple actors suggested that law enforcement officers were known to abuse their positions of power, or were working in complicity with sturgeon poachers and organized criminal networks. For example, NGO representative Irini described corrupt practices from enforcement authorities:

If they [border police] find something not quite OK, then they require fish [as a bribe]. Usually they came near the holidays, they came in that time. They came one by one, and they wanted fish for themselves… from the Danube Delta we have stories that they seize the tools and after that they sell it on another place[[244]](#footnote-244).

As such, WWF via the LIFE project, find a way of overcoming the restrictions preventing NGOs engaging in control missions, by partnering with the enforcement agencies through the Sturgeon Watchers scheme. In doing so, WWF find a seemingly mundane way to insert logics of security and surveillance into the responses to sturgeon poaching and illegal trade. Sturgeon Watchers are simultaneously monitoring those designated with the responsibility to monitor poaching.

Whilst such responses might be predicated upon securing state resources and reducing organised crime, it is important to also consider the social implications of this evolving form of conservation surveillance, and the security implications for those recruited to conduct these activities. In a context where interviewees outlined that corruption, violent crime, and even death is inherent to the illicit caviar trade in the Lower Danube and North-West Black Sea region, there is a need to problematize ostensibly banal projects such as the Sturgeon Watchers scheme. It is imperative to question if through their involvement in the project, the Sturgeon Watchers are made more insecure. Are these volunteers properly equipped to deal with the possible negative consequences they may face if confronted with evidence of illegal trade, organised crime, or corruption? A different illegal wildlife trade issue in Romania – illegal logging - points to some of the security risks for those trying to tackle illegal wildlife trade. For example, laypeople have been violently attacked and ostracised in their communities for systematically recording evidence of illegal logging[[245]](#footnote-245). Although nothing of this kind has been reported about the Sturgeon Watchers scheme, given the socio-political context in the region it is important to highlight the possible negative security implications for those engaging in the surveillance.

Thus, the securitized narratives and responses to illegal caviar trade in the Lower Danube region illustrate that the ‘dissolving’ of illegal caviar trade as a security issue by EU institutions, does not go uncontested. Rather NGOs operating in the region – in particular WWF – have positioned illegal caviar trade as an organised crime that threatens the wellbeing of European citizens, businesses, national and regional infrastructures, and local economies. As a result, WWF have promulgated securitized responses to illegal caviar trade. These securitized responses are evolving in line with a) the changing nature of organised crime in the caviar trade, which is revealed through gaps and grey areas in regulations; and b) wider trends in the global conservation arena that are leading to the proliferation of conservation surveillance methods (Massé *et al.*, 2020). The centring of surveillance logics in these actions, illustrates how banal expressions of security permeate seemingly apolitical conservation strategies.

Moreover, these securitized response strategies highlight the issue of contested power geometries and the unequal impacts that result from the discursive designation of security threats, and the strategies developed to respond to such threats. Both the example of the IP surveillance camera and the Sturgeon Watchers scheme, draw attention to how the motivation to achieve an abstract notion of national or regional security can ironically make particular groupings of individuals more insecure. In this context, local fishermen can be made into ‘human bycatch’ at the mercy of the camera and border force officials (Sandbrook *et al*., 2018); and the Sturgeon Watchers volunteers’ could be placed at heightened risk in the drive to eradicate sturgeon poaching and illegal caviar trade. However, these aspects of insecurity are overlooked in the overriding push by WWF to pursue securitized actions designed to eradicate the threats posed by organised crime in the illegal caviar trade in Europe. WWF use conservation surveillance in European sturgeon range states as a means to extend their authority in environmental governance (Sandbrook *et al*., 2018), and their influence in the region.

Ultimately however, the securitized responses discussed here do not have the power to challenge the ‘dissolving’ security narratives at work at the EU-level; and in fact, they may even reinforce this dissolving process. The IP surveillance camera and Sturgeon Watchers scheme are framed as securitized responses to the existence of organised crime in the caviar trade and the threat it poses. However, by focusing the securitized responses at the lowest rung in the criminal chain – fishermen and fishing communities – the securitized actions disproportionately impact already insecure individuals, rather than destabilising the core structures of the criminal networks or the corrupt governance pathways in place. A ‘poacher’ caught on camera or by the Sturgeon Watchers, is expendable to criminal networks and easily replaceable. As a result of these actions, the focus remains on poaching dynamics in sturgeon range states, which feeds into and reinforces the EU narrative that tackling illegal caviar trade should be a priority “more for the regions, with the countries, the range states concerned”[[246]](#footnote-246). Consequently, the transnational reach, political economy, and security implications of illegal caviar trade beyond Eastern Europe, remains largely out of view. Thus, the securitizing narratives and responses of WWF do little to challenge the power geometries that position illegal caviar trade as a declining security issue in the EU.

## 7.3 Silenced securities

Finally, I consider an emerging security narrative that fails to gain political traction, and is silenced as a result of the power geometries that shape how illegal caviar trade is positioned in the security landscape of the EU. The securitizing narratives that are silenced are inherently more-than-human, as they attempt to foreground the security implications of gaps and grey areas in caviar trade regulations for sturgeon and EU habitats. These narratives are framed in terms of ‘ecological security’ (McDonald, 2017) and point to the interconnectedness of organised crime, government corruption and demand for caviar in Western European states, as driving forces that compound ecological degradation and environmental insecurity in sturgeon range states - with negative implications for both human and nonhuman actors. By interrogating “what is being secured and for whom” (O’Lear, 2018: 172), these security narratives uncomfortably highlight the security threats emanating from within EU Member State governance structures and the political economy of caviar trade in the EU, rather than solely targetting the abstract external threat of ‘organised crime’. As a result, I argue that these securitizing narratives are silenced. I show how EU Member State governments such as the Romanian government, respond to those espousing ecological security narratives as though they themeselves constitute a threat to ‘national security’.

Conspicious by absence in the securitizing discourses discussed previously in section 7.2, is the threat posed from illegal caviar trade to sturgeon and EU ecosystems. Instead the dominant securitizing narratives and practices foreground the security threats posed by organised crime to ‘national security’: imagined in terms of the security of EU citizens, economies, and infrastructures. A minority of voices espoused an expanded, more-than-human vision of security; which frames the political economy of illegal caviar trade in the EU and corrupt governance structures, as posing a direct security threat to sturgeon, EU ecosystems, and EU citizens alike. In incorporating sturgeon into their discussions about the security implications of illegal caviar trade, researchers and NGO representatives pointed to the gaps and grey areas in regulations as having more-than-human security implications.

Sturgeon are said to be a key indicator of the health of ecosystems (Friedrich, 2018); and the extinction of sturgeon could lead to the disapearance of other species and the collapse of the ecosystem (Van Uhm, 2016b: 155). Thus scientists and researchers emphasised their worries that due to continued overexploitation of sturgeon for illegal caviar trade, “the fish is vanishing from the rivers”[[247]](#footnote-247) and this is increasingly likely to result in an ecological crisis for fragile EU ecosystems, with detrimental spillover effects for the livelihoods and well-being of EU citizens.

Despite their best efforts to garner attention and support for these ecological security concerns, these narratives have been ignored or systematically silenced by the Romanian government. This is because such securitizing narratives have pointed to the suspected complicity of the state in contributing to illegal caviar trade – either through irresponsibility at the very least, or corruption at the worst. Danut stressed that “all the Romanian institutions are part of it, they are responsible for the poaching and for the blocking [of conservation schemes]”[[248]](#footnote-248). Indeed interviewees framed the highest echelons of Romanian government as contributing to the ecological insecurity of sturgeon due to corrupt economic interests and the potential to profit from sturgeon crimes: “instead of thinking to the conservation value, they prefer to think to the economic value”[[249]](#footnote-249). These securitizing narratives therefore complicate the hegemonic security narratives that frame organised crime as an external security threat emanating from countries such as Ukraine and Russia (thus necessitating surveillance interventions at the Ukrainian-Romanian border, and the Black Sea); and instead position the Romanian state as constituting part of the security threat posed to sturgeon, EU ecosystems and citizens.

In examining how security is invoked to stabilise geopolitical discourses about the environment, O’Lear (2018) argues that “a view of the world that explains why something or someone poses a significant threat to our well-being can also be motivating” (172). Whilst these ecological security narratives attempt to generate their own securitized responses to sturgeon crimes, the security narrative has also motivated counter-securitizing moves from more powerful actors. For example, the Romanian government have responded in ways that silence these ecological security narratives. Juliani explained that vocal researchers and NGO representatives who have investigated the links between the Romanian state and sturgeon crimes, “have experienced political pressures before, but never like recent ones”[[250]](#footnote-250). I discovered that critical researchers had found their contracts terminated with two hours notice, after employers were placed under direct threat from government officials to remove the individuals from their position. A caviar producer who had worked directly with the government for over ten years explained that his contract was abruptly brought to an end after he had planned to whistleblow and publicly disclose evidence of the corrupt issuance of scientific sturgeon fishing permits in Romania.Visibly shaken, Danut explained that after the termination of his contract with the government his business had come under further threat, which had forced him to “transfer the fishes, because they [the government] tried to take everything”, and he felt completely “pushed apart”[[251]](#footnote-251). Moreover, interviewees also expressed their fears and suspicions that they were under government surveillance, after excerpts from private phonecalls and emails were used to blackmail them.

Thus, the Romanian government have reportedly taken actions to silence the alternative securitizing narratives that position the Romanian state as part of the organised crime structures and EU political-economic infrastructure that serves to compound ecological insecurity for sturgeon and EU habitats, as well as posing security issues for EU citizens. The individuals espousing these ecological security narratives are effectively codified as ‘security threats’ to the state, and the government has responded by reportedly employing extreme and sometimes invasive tactics. As a result, individuals advocating for sturgeon security are made more insecure. Juliani explained that she feels:

Powerless. If I want to do something I am too small. Even if I want to involve the academy this is not possible because they [Romanian government] manage to reach also the highest levels of the academy. Now I have my hands tied here in Romania[[252]](#footnote-252).

This discussion therefore points to a further aspect of the power geometries encapsulating the contested securitization of illegal caviar trade in the EU. Emerging ‘ecological security’ narratives in Romania are silenced by government actors that are implicated as constituting part of the security threat to sturgeon, EU habitats, and EU citizens. Instead, attention remains squarely with the abstract security threat posed by organised crime, which is discursively linked to sources outside the EU. These actions serve to shield the state from reputational damage, and ultimately make other actors more powerless and insecure. This points to the importance of O’Lear’s (2018) call to examine “where will the well-being of people, species, or ecosystems be rendered less robust and worse off” by securitized narratives and interventions. In this case, the silencing of more-than-human security discourses that centre sturgeon and ecosystems, highlights Juliani’s assertion that “human behaviours and interests outcompetes everything, unfortunately”[[253]](#footnote-253). As such, sturgeon are ultimately rendered voiceless and invisible in the EU security landscape that fixates on threats to national and regional security from a human-centric perspective.

## 7.4 Conclusion

This chapter outlines the contested geopolitics surrounding the securitization of illegal caviar trade in the European Union. In this chapter I argue that despite efforts to discursively dissolve illegal caviar trade as a security issue at the EU level, there are a number of evolving and emerging security narratives and responses that illustrate that illegal caviar trade remains an ongoing security issue in the EU. I show how the gaps and grey areas in caviar trade regulations - that enable illicit caviar trade - have also produced shifting security configurations in the EU, which are overlooked by the dominant narratives that suggest illegal caviar trade is a declining security issue.

Ultimately this chapter develops a more-than-human analysis of the geopolitical ecologies of securitization in the EU. In line with O’Lear’s (2018) understanding of security as a ‘discourse stabiliser’, I demonstrate how security is variably invoked to “call for action” or to even justify “inaction” (O’Lear, 2018: 173) in relation to illegal caviar trade in the EU. I show how the relative success of securitizing narratives and responses, is determined by the power geometries operating within the European Union. These power dynamics serve to prioritise the agendas of powerful institutions, whilst sidelining the security of sturgeon, fragile ecosystems, and already insecure groups such as sturgeon fishing communities. This chapter therefore speaks to the theoretical framework of more-than-human geopolitical ecology by interrogating how ‘security’ stabilises particular geopolitical discourses and interventions, and in the process creates unequal conditions of security and insecurity for a range of human and nonhuman actors.

The chapter shows how security issues ‘emerge, evolve, and dissolve’ (Balzacq, 2011); and focuses on interrogating the power dynamics underlying these securitizing processes and responses. Firstly I show how the security implications of illegal caviar trade are being discursively dissolved at an EU policy level. This I argue fits the EU political agenda that seeks to respond to the spectacularised links between wildlife trafficking and security; and thereby positions illegal caviar trade as a conservation issue in sturgeon range states rather than an EU-wide criminal-security problem. By redirecting attention towards the sturgeon range states, this effectively absolves Western European Member States of their role in fuelling demand for illegal caviar and catalysing organised crime.

However, I demonstrate that the politics of the security landscape in the EU is contested, and that other securities are evolving and emerging in relation to illegal caviar trade. Ultimately though, these alternative security narratives do not possess enough power to challenge the hegemony of EU security discourses, and may even reinforce them. The issue of illegal caviar trade in sturgeon range states is framed as a security issue that threatens national and regional security due to its links with organised crime. This framing has produced a number of security oriented responses pursued by NGOs, which contribute to evolving conservation surveillance strategies in the region. I argue that these surveillance methods ironically have the potential to enforce insecurity for some groups; whilst reinforcing the EU narratives that illegal caviar trade is a conservation issue to be solved by range states, rather than an EU-wide criminal issue. This is because the securitized responses focus solely on poaching and do not engage with the wider political economies of illegal caviar trade in the EU.

Finally I draw attention to the silenced security narratives that attempt to highlight how illegal caviar trade poses an ecological security threat to sturgeon and EU ecosystems. This securitizing narrative suggests that the security threat posed by illegal caviar trade is in part produced by internal EU dynamics such as demand for wild caviar, and corrupt governance structures in range states such as Romania. These contrasting security narratives elicit securitized responses from the Romanian government, which serve to silence the individuals and effectively codify them as a ‘security threat’ to the Romanian state. As a result, the security implications of illegal caviar trade upon sturgeon are marginalized in the security landscape of the EU.

In sum, this chapter highlights how gaps and grey areas in caviar trade regulations have catalysed shifting securitizing discourses and responses to illegal caviar trade in the EU. Geopolitical discourses about the environment deploy security to identify “particular places, groups of people, or spatial processes likely to threaten *our* wellbeing” (O’Lear, 2018: 172 emphasis added); thereby pointing to the human-centrism and power relations shaping security thinking. This is exemplified in the security narratives and responses to illegal caviar trade in the EU, which starkly demonstrate the notion that “if it threatens us, *we* are thinking action”[[254]](#footnote-254). Importantly, the demarcation of ‘us’ can produce insecurity for those beings – human and nonhuman – that do not fall into the category deemed necessary to protect from the security threat by the powerful securitizing actor. Whilst sturgeon are sidelined in these security discourses, the following chapter examines how they are forcefully brought into the remit of geopolitics, as both geopolitical subjects and actors.

# Chapter 8: Sturgeon Geopolitics

## 8.0 Introduction

This chapter engages with sturgeon geopolitics. Sturgeon geopolitics refers to how the ecological, physiological, and affective characteristics of sturgeon shape the processes and outcomes of international relations. I make the case that as an endangered species, sturgeons are intrinsically intertwined with geopolitics: geopolitics is enacted around and through sturgeon. I theorise the entanglement of sturgeon with geopolitics from a more-than-human perspective. My approach conceptualises sturgeon as geopolitical actors: actors that co-produce the geopolitical interventions and configurations that play out in the ecologies of sturgeon in the European Union.

I first considered the geopolitical significance of sturgeon at ISS8 in Vienna in September 2017, when a representative of WWF International called sturgeon “living encyclopaedias”[[255]](#footnote-255). They explained that the bodies of sturgeon record evidence of environmental change that can be scientifically dated to incidences of environmental disturbance, such as periods of nuclear testing. By corporeally linking sturgeon to events of historical geopolitical significance such as nuclear testing, this effectively points to the intertwinement of sturgeon with geopolitics. Rather than referring to sturgeon as “living fossils”[[256]](#footnote-256), which has been another popular characterisation of the fish; the term “living encyclopaedias” refigures sturgeon as important barometers for contemporary environmental conditions. As well as being able to contribute valuable information to records of environmental politics, sturgeon as living encyclopaedia are “considered one of the best indicators for riverine ecosystem health” (Friedrich, 2018: 507). I therefore argue that sturgeon have the capacity to inform and add nuance to understandings about environmental-geopolitical conditions of the past, as well as being enrolled as actors in contemporary geopolitical discussions about environmental change.

To develop this argument about sturgeon geopolitics, and to contribute to the main argument of the thesis, I examine the implications of gaps and grey areas in the regulations designed to counter sturgeon crimes in the EU. I demonstrate how ambiguities in the regulatory frameworks have been exploited by geopolitical actors as a way of securing access to and control over sturgeon populations. I assert that these attempts to gain more control over and access to sturgeon have both geopolitical motivations and geopolitical consequences. Through two empirical examples from Romania and the Black Sea, I show how sturgeons are enrolled as unlikely geopolitical subjects in the European Union.

Moreover, in further building a discussion around sturgeon geopolitics, I eschew the human centrism inherent to much geopolitical scholarship and make the case that sturgeon themselves are geopolitical actors. The behaviours, materiality, and ecology of sturgeon play a fundamental role in shaping geopolitical situations that implicate EU institutions and Member States. By their nature as migratory fish and mobile resources, sturgeons sometimes defy straightforward control and management by geopolitical actors, and this can produce interesting geopolitical dynamics that require interrogation. I also demonstrate how sturgeons themselves reveal gaps and grey areas in regulatory frameworks that may have been hitherto hidden or overlooked. I argue that this points to the ways in which nonhumans can illuminate where policies designed to protect them are flawed. As such, being attuned to nonhuman agency opens up avenues for producing policies that are more effective and potentially less geopolitically contentious.

In sum, this chapter outlines the implications of the EU caviar trade regulations in terms of sturgeon geopolitics. A sturgeon geopolitics lens conceptualises the multiple ways that sturgeon are geopolitically important: as both a subject of geopolitical interventions, and as a geopolitical actor in their own right. This line of argument creates space for conceptualising environmental geopolitics (O’Lear, 2018) and geopolitical ecology (Bigger & Neimark, 2017) from a more-than-human perspective; as well as adding a new perspective to literatures on ‘living resource management’ (Dodds, 2000), which explore the geopolitics, political economy and political ecology around managing mobile fish resources (Dodds, 2000; Campling, Havice & Mccall Howard, 2012; Havice, 2018).

The chapter is structured as follows. In section 8.1 I analyse two empirical examples that illustrate how geopolitical actors make use of gaps and grey areas in caviar trade regulations as a way of accessing sturgeon populations. I show how these actions have both geopolitical motivations and ramifications, and thereby position sturgeon as geopolitical subjects. In section 8.2 I develop the argument that sturgeon are geopolitical actors. I examine how sturgeon illuminate inconsistencies and frictions in regulatory frameworks through their movements and inability to be completely controlled by human forces, and thereby co-produce geopolitical outcomes. Finally, in section 8.3 I conclude and consider how policymaking could be more effective if attuned to the agencies of nonhumans.

## 8.1 Exploiting gaps in regulations to secure access to sturgeon

A number of studies illustrate how large geopolitical institutions have an interest in attempting to ‘define, control, and manage nature’ (Mullaney, 2014; Bigger and Neimark, 2017; Belcher *et al.*, 2019; Massé and Margulies, 2020). In the case of managing sturgeon and caviar trade in the EU, CITES is the UN convention that defines how sturgeon as natural resources can be internationally traded. Thus, sturgeon are embroiled in processes of ‘living resource regulation’ (Dodds, 2000) that limit how states can make use of sturgeon, as well as detailing how they must protect sturgeon and their habitats[[257]](#footnote-257). Although established systems of control and management are in place, geopolitical actors may attempt to subvert the prevailing systems of management and control. For example, despite the limits on the use of wild sturgeon, states attempt to find ways to gain further control and access to sturgeon. I argue that they do so by identifying and taking advantage of gaps, loopholes and grey areas in the regulatory frameworks. Indeed a representative of the World Sturgeon Conservation Society (WSCS), speaking at ISS8 recognised that “tricks exist to circumvent regulations. So there is an urgent need to promote moral standards globally”[[258]](#footnote-258). I argue that attempts made by geopolitical actors to exploit discrepancies in regulatory frameworks in order to gain control over and access to sturgeon, have both geopolitical motivations and geopolitical consequences. In the following empirical examples I question how, and why, geopolitical actors capitalise upon the regulatory gaps in order to secure access to sturgeon. In doing so, I outline the geopolitical consequences that arise and how sturgeon emerge as geopolitical subjects.

### 8.1.1 Scientific fishing permits in Romania

“Would you like the truth or a nice story?”[[259]](#footnote-259), was the opening line of an interview with Avram, a researcher involved in a sturgeon-monitoring project authorised by the Biodiversity Directorate of the Romanian Ministry of Environment, to conduct controversial scientific fishing of sturgeon. This authorisation had been issued despite widespread critique – by local and regional NGOs, other government agencies, and caviar producers - of the project’s methods and previous project results. However Avram was not willing to discuss the contested politics surrounding the sturgeon-monitoring project, beyond deflecting criticism and re-directing his own misgivings at the same NGOs and government bodies levelling critique at the project. Avram adeptly steered the course of the interview to suit the narrative he wished to portray: that the research group were engaging in lawful, state-sponsored, and necessary scientific fishing of sturgeon.

The ‘truth’ regarding the credibility of the sturgeon-monitoring project’s results, was impossible to identify in a politically charged context in which seemingly all actors disagree. Irrespective of whether the scientific fishing of sturgeon conducted by this research team has negative implications, what is particularly compelling about this scenario is how the legislative grey area of scientific sturgeon fishing becomes refigured as an issue of geopolitical significance. Indeed, I argue that the authorisation given to this research institute to conduct scientific sturgeon fishing in Romania, is an exploitation of a legislative grey area and forms part of the Biodiversity Directorate of the Romanian Ministry of Environment’s wider geopolitical agenda. A mutually beneficial relationship is established by this authorisation of scientific fishing: the institute gain high-level political approval for their oft-critiqued research practices; and the Biodiversity Directorate gain access to data about sturgeon, which they can use to serve their geopolitical purpose. I show how in this process, sturgeon emerge as geopolitical subjects; and also demonstrate how the backlash against the research institute’s authorisation to conduct scientific sturgeon fishing, has geopolitical ramifications that extend beyond Romania.

Romania introduced Joint Ministerial Order 262 in April 2006, which initiated a ten-year ban on wild sturgeon fishing[[260]](#footnote-260). The fishing ban has been re-extended since then, but the process to re-implement the fishing ban has been politically turbulent. Juliani, a representative of a Danube-region based NGO explained that “due to high level political interference, it took us over 4 months to sign the Ministerial Order extending the sturgeon fishery ban, in line with the informal agreement of the Lower Danube countries (Vienna, Dec 2015)”[[261]](#footnote-261). The informal international agreement between Lower Danube countries promotes a fishing ban until at least 2021[[262]](#footnote-262), and this was officially implemented in Romania in 2016.

Whilst a sturgeon-fishing ban exists in Romania, scientific fishing of sturgeon remains shrouded in legislative ambiguity. Subtle changes made to the legislative text outlining exemptions to wild sturgeon fishing, sparked political protests led by NGOs in Romania in 2009. This culminated in a change of law which made explicitly clear that all wild sturgeon catches were prohibited except for restocking purposes (Rogin, 2011: 30). At the same time, CITES Resolution Conf. 12.7 urges sturgeon range states to conduct “scientific research and ensure adequate monitoring of the status of stocks… through appropriate management programmes” (CITES, 2002: 1). Arguably, scientific fishing is imperative for in-situ management and monitoring of the status of sturgeon populations. In this regard, scientific fishing permits continue to be granted to research institutes in Romania that have a longstanding history of conducting research on sturgeon. Such permits are typically granted by the National Agency for Fisheries and Aquaculture (ANPA or NAFA)[[263]](#footnote-263) and the Danube Delta Biosphere Reserve Authority (DDBRA). CITES Resolution Conf 12.7 does not however stipulate rules around issuing scientific fishing permits. The legislation in Romania appears to mandate that scientific fishing can only be authorised for projects with a restocking component[[264]](#footnote-264). However, in practice that does not appear to be the case. As a result, the issuance of scientific fishing permits is somewhat down to interpretation and exists in a legislative grey area.

Over recent years, the situation surrounding scientific fishing permits has become politically fraught in Romania. The legislative grey areas have resulted in conflict between government ministries, as the Biodiversity Directorate (Ministry of Environment) has superseded the rulings of ANPA (Ministry of Agriculture). Juliani has criticised the behaviour of the Biodiversity Directorate, framing it as “political interference”[[265]](#footnote-265). She is joined by a range of other interlocutors from NGOs to caviar industry representatives, who have expressed concerns about the actions of the Biodiversity Directorate and the relationship the Directorate is establishing with the research institute in question. This relationship is legally formalized in Ministerial Order 384/2018.

The Romanian Ministry of Environment on behalf of the Biodiversity Directorate issued Ministerial Order 384/2018 on 3rd May 2018. This Ministerial Order granted Avram’s sturgeon research project the catch of 375 sturgeon under a scientific fishing permit. As briefly mentioned, the previous sturgeon-monitoring activities of this research institute have been plagued by criticism from NGOs, ANPA, and DG REGIO[[266]](#footnote-266) of the European Commission. Based on previous research evaluating the impacts of an infrastructure and navigation project on the Romanian Danube, the research institute concluded that the construction of an underwater sill designed to redistribute water to create better conditions for navigation, did not negatively impact upon sturgeon. This was despite the fact that the redistribution of water intercepts key migration routes of several sturgeon species with particularly high water velocities that will likely impede migration and subsequent reproduction. Those considered sturgeon experts from other research institutes, were pushed out of the project and subsequently sued by the director of the research institute after they signalled their concerns about the conclusions that had been disseminated.

There has also been cause for concern about the “continuous refusal and/or obstruction”[[267]](#footnote-267) of the research institute to publish the raw data that supports their findings. NGOs have expressed fears about the data manipulation and forgery that could be occurring. Criticising the fact that NGOs can only access a curated set of findings, Juliani said: “this is not like the bible, you can’t be given a statement and just believe it”[[268]](#footnote-268).  The research institute justify their guardedness, claiming it is a proactive step in preventing sturgeon crime. They suggest that if they publish the raw data publicly, it will allow poachers to accurately identify where sturgeon are[[269]](#footnote-269). However, DG REGIO of the European Commission condemned the refusal to share raw data from the sturgeon monitoring activities, declaring it ‘a breach’ of the UN Economic Commission for Europe (UNECE) Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus convention). The research institute have not released the raw data to NGOs despite being mandated to do so, have restricted access to public data, have vetoed JASPERS[[270]](#footnote-270) experts, and have treated public interest information as “secret data”[[271]](#footnote-271).

Critics put forward multiple suggestions as to why the research institute seeks to hide their raw data. In particular, there is mounting speculation that the scientific fishing permits may be facilitating underhand activities. NGOs have identified anomalous results in the project reports that are accessible to them, pointing to the fact that a strikingly high proportion (c.95%) of the fish caught and tagged by the research team were male sturgeon[[272]](#footnote-272). This has led individuals such as Juliani to speculate that a process of ‘sorting’ goes on, whereby male fish are tagged for the research, and female sturgeon are removed for illegal caviar trade. Furthermore, investigations have uncovered direct familial links between a member of the research team and a local mafia godfather who has previously been convicted of illegal fishing activities. Connections have also been unearthed between members of the team and a suspicious sturgeon aquaculture farm located in close proximity to the project area, which came into operation around the same time as the sturgeon-monitoring project began in 2012. It was suggested that this aquaculture facility might provide the means for whitewashing of caviar taken from ‘sorted’ sturgeon.

Based upon concerns about the activities of this research team, in October 2017 ANPA revoked the scientific fishing licence awarded to the research institute. ANPA defended their withdrawal of the scientific fishing permit, by arguing that the sturgeon monitoring activities of the research institute served to aid the activities of poachers, who wait downstream from the release sites to catch sturgeon that are still under the effects of the sedatives used when tagging the sturgeon.

Irrespective of the speculation about the legality of the research team’s activities, there was a tangible concern amongst NGOs that scientific fishing on this scale could severely disrupt remaining sturgeon populations. Ichthyologists described a ‘bounce-back’ phenomenon whereby fish are sometimes known to abandon their migration after being tagged; which effectively means that they abandon spawning. As the proposed scientific fishing would take place in key migration paths for sturgeon en-route to spawning grounds, this is particularly worrying. Thus, there exists a concern that:

The order will render useless the international agreement of the Lower Danube countries to restrict the sturgeon fishery until 2021. When sturgeons are so few, allowing them to capture so many individuals will have devastating effects for the remaining population… and now when international experts [have] attracted projects allowing them to do something meaningful for sturgeons, there will be no wild sturgeons to study as they will all be compromised[[273]](#footnote-273)

Notwithstanding these widespread concerns, the Ministry of Environment continues to support and actively promote the research team and scientific sturgeon fishing. Avram declared that the government have “recognised their monitoring scheme as a program of national pride to roll-out”[[274]](#footnote-274), and as such the institute has won multiple tenders from the Ministry of Environment to conduct further sturgeon-monitoring activities. However these on-going activities are stymied by ANPA’s revocation of their fishing licence. As such, the Ministry of Environment issued Ministerial Order 384/2018 as a direct challenge to ANPA’s ruling. Interestingly this Ministerial Order was formulated in secret, and bypassed the two groups that could have provided scientific evidence to counter the decision: the CITES Scientific Authority for sturgeon in Romania, and the Working Group for Sturgeon Conservation - ironically established under the coordination of the Ministry of Environment in 2016 to provide support to the government for sturgeon related decisions. ANPA refused to implement this order on the grounds that it is ‘illegal’; but as a result of political pressure and mounting tension, ANPA acquiesced and issued the research institute with a licence to scientifically fish 50 sturgeons. However Avram maintains that the refusal of ANPA to grant the full license for 375 sturgeons is ‘illegal’, and the research institute is commencing legal proceedings against the government agency[[275]](#footnote-275).

Based upon these developments, NGO representatives have stressed the need to “investigate the ‘particular’ interest of [the] Biodiversity Directorate for this institute, provided their dedicated efforts to promote this team despite their questionable expertise”[[276]](#footnote-276). Indeed, I argue that the Biodiversity Directorate (Ministry of Environment) have geopolitical motivations that are realised by exploiting legislative grey areas and granting the research institute access to sturgeon via scientific fishing permits. By framing this as state-sponsored scientific research, the Biodiversity Directorate add credibility to the institute’s politically contentious results. In doing so, they go someway in silencing the dissenting voices from NGOs and other research institutes, who have cast doubt on both the research institute’s methods, motivations and results; and the Biodiversity Directorate’s lackadaisical approach to sturgeon conservation.

Moreover, by granting[[277]](#footnote-277) the research institute access to sturgeon, the Biodiversity Directorate in turn acquire greater access to and control over wild sturgeons, as well as direct access to the data on sturgeon that the institute have kept hidden. Given that these data are not publicly available, the Biodiversity Directorate can selectively mobilise data that suits their geopolitical objectives – i.e. to suggest that sturgeon are not impacted by their navigation projects. This serves to produce a narrative whereby the Biodiversity Directorate (Ministry of Environment) outwardly appear to be proactively supporting sturgeon conservation, by sponsoring scientific research in line with EU regulatory commitments and the suggestion of CITES. The refusal of ANPA to grant the scientific fishing permits enables the Biodiversity Directorate and research institute to promulgate a victim narrative, while at the same time shutting out NGOs and other credible research institutes from accessing these project data. Thus, the Biodiversity Directorate (Ministry of Environment) exploit the grey areas around scientific fishing permits, in order to secure exclusive access to sturgeon and secret data on sturgeon. These data can be mobilised in geopolitically expedient ways.

Geopolitical motivations aside, the 2018 Ministerial Order granting the research institute access to and control over 375 wild sturgeon, has had subsequent geopolitical impacts that go-beyond the Romanian context. In particular, the NGO sector has drawn attention to the wider geopolitical significance of exploiting the ambiguities in legislation for scientific fishing. First, NGOs pointed to the fact that the content of the Ministerial Order discounts credible scientific knowledge, and exploits grey areas in regulations for political gain. They highlighted their concern that this could set a precedent in the EU for contravening EU-wide agreements and discrediting science.

Second, NGOs highlighted what they characterised as a distinct lack of EU high-level leadership or political response to the situation in Romania. NGO representatives suggested that the duty falls on them “to remind policymakers about the fact these policies and legislations exist, that they themselves have signed off on them”, and “to remind them about their own obligations”[[278]](#footnote-278). This obligation to comply with policy is multi-scalar, and involves reminding both national policymakers and EU-level policymakers. However, it was acknowledged that “nowadays the NGOs and civil society opinion are not really valued in Romania and hence NGO documents could be ignored”[[279]](#footnote-279). Indeed, there was a demonstrable sense that NGO’s – and sturgeon scientists - in Romania *are* being ignored. As a result NGOs and concerned civil society groups are increasingly seeking to access higher levels of political influence in the European Union, by reminding the EU of the obligation to support Member States in responding to issues that should be of wider concern to the EU.

That being said, sturgeon are on the radar of the EU. In fact, the EU institutions have played a central role in cementing the narrative that sturgeon are “an emblematic species”[[280]](#footnote-280) in Europe. The EU has provided funding for projects focused on sturgeon conservation and tackling illegal caviar trade, such as the WWF Life for Danube Sturgeons project. Sturgeon conservation and trade issues have also been integrated into the priority areas of the European Union co-funded EU Strategy for the Danube Region (EUSDR). However, NGOs and caviar industry representatives working in Romania, expressed frustration at the difficulties they have faced in eliciting EU support to challenge the issuing of scientific fishing permits for research that exists in a scientific, political and moral grey area. Aside from the ineffective letter sent by DG REGIO to the General Director of the Romanian Ministry of Regional Development, Public Administration and European Funds, the EU institutions have made no further intervening moves to date.

Sturgeon farmer and caviar producer Danut recounted his struggles to receive support from higher political levels in the EU, after uncovering issues with the manner in which individuals in the Romanian government issued scientific fishing permits. As a result, Danut vociferously expressed his disappointment with the European Union: “You have to blame very strongly the EU, for stepping back on the ‘flagship of Europe’, sturgeon. If we don’t have the support of the EU, it’s over”[[281]](#footnote-281). Similarly, representatives of NGOs criticised the EU for being too hands-off: “These issues are happening in Europe and not enough is being done about it… just because a new member state joins the EU, the issues they have will not just go away... it’s time to show the EU is walking the talk at home, not only pointing the finger at Asians and Africans”[[282]](#footnote-282). Unfortunately though, the calls for the EU to step in to more proactively influence the situation in Romania, comes at a time when sturgeon and caviar have been downgraded as a European Commission CITES priority area, and when policymakers have suggested that tackling sturgeon crimes has to be a priority “more for the regions, within the countries, the range states concerned.”[[283]](#footnote-283).

This example has illustrated how the issuance of scientific sturgeon fishing permits is a geopolitical issue in the EU. Scientific fishing is a regulatory grey area, and I have demonstrated how the Romanian Biodiversity Directorate exploit this grey area for geopolitical motivations. Moreover, I show how the legislative ambiguities around scientific fishing permits have had broader geopolitical consequences. Namely, NGOs and caviar industry representatives have attempted to draw international political attention to the injustices they perceive to be occurring in Romania: whereby scientific evidence and civil society voices are being side-lined in favour of practices that may be destructive to sturgeon. This in turn has raised pertinent geopolitical questions about the role the EU should have in investigating or challenging these potentially unjust practices[[284]](#footnote-284). However, the narrative the Romanian government is able to deploy through their access to sturgeon and scientific data about sturgeon, fits with the stance of the EU: that the range states should be taking primary responsibility for their sturgeon stocks. As a result, dissenting voices in Romania and beyond felt that the EU is overlooking their concerns and obligation to sturgeon. Thus, I demonstrate how the impacts of the regulatory grey areas around scientific fishing result in sturgeon becoming the subject of complex power politics in the EU.

### 8.1.2 Designation of shared stocks in the Black Sea

Geopolitics has long underwritten the conservation of sturgeon and the regulation of the caviar trade. For example ex-enforcement officer Michael, explained that “the thing the CITES Secretariat was constantly battling against… was just the geopolitics”[[285]](#footnote-285). In this second empirical example I continue to focus on how geopolitical actors capitalise upon ambiguities in caviar trade regulations for implicit geopolitical purposes. I further my argument that sturgeon are unlikely geopolitical subjects, by examining how actors use sturgeon conservation as a way of initiating geopolitical moves in the Black Sea. I demonstrate how at their core, these geopolitical moves are linked to issues of territory and sovereignty.

The situation regarding sturgeon management in the Black Sea is said to be “a complete disaster. In terms of sturgeon conservation… the Black Sea is the ‘Wild East’”[[286]](#footnote-286). Indeed, a representative of the Romanian National Agency for Fisheries and Aquaculture (ANPA) further emphasised the sensitive geopolitical nature of managing fisheries in the Black Sea:

The problem of the Black sea is strategic... and more important than we could imagine. There are lots of problems politically speaking for the management of species in the Black Sea… it’s very hot water[[287]](#footnote-287).

The following empirical material deftly demonstrates the hot water and icy geopolitical relations that have unfolded following the implementation of caviar trade regulations in the Black Sea region.

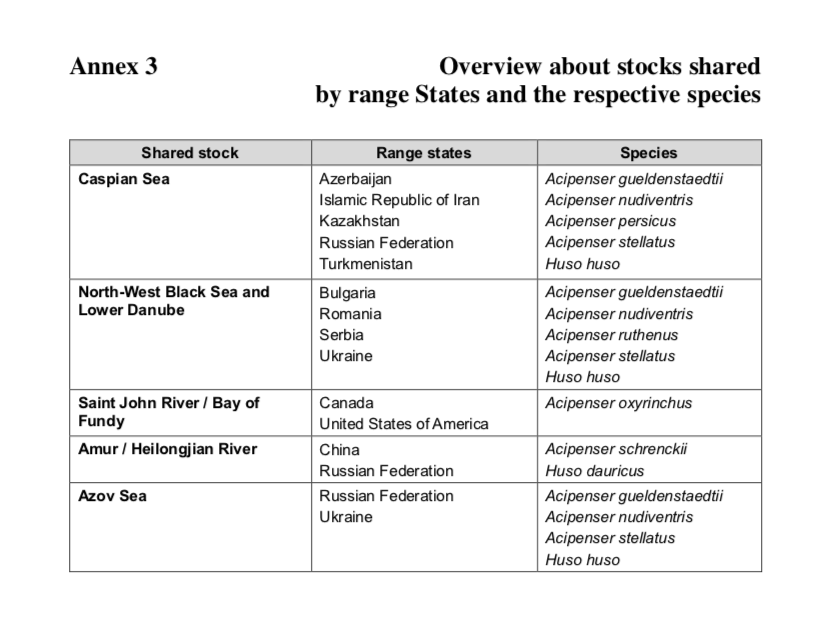


#### Figure 8.1: Map of the Black Sea and Black Sea littoral states

Source: <https://upload.wikimedia.org/wikipedia/commons/5/52/Black_Sea_map.png>

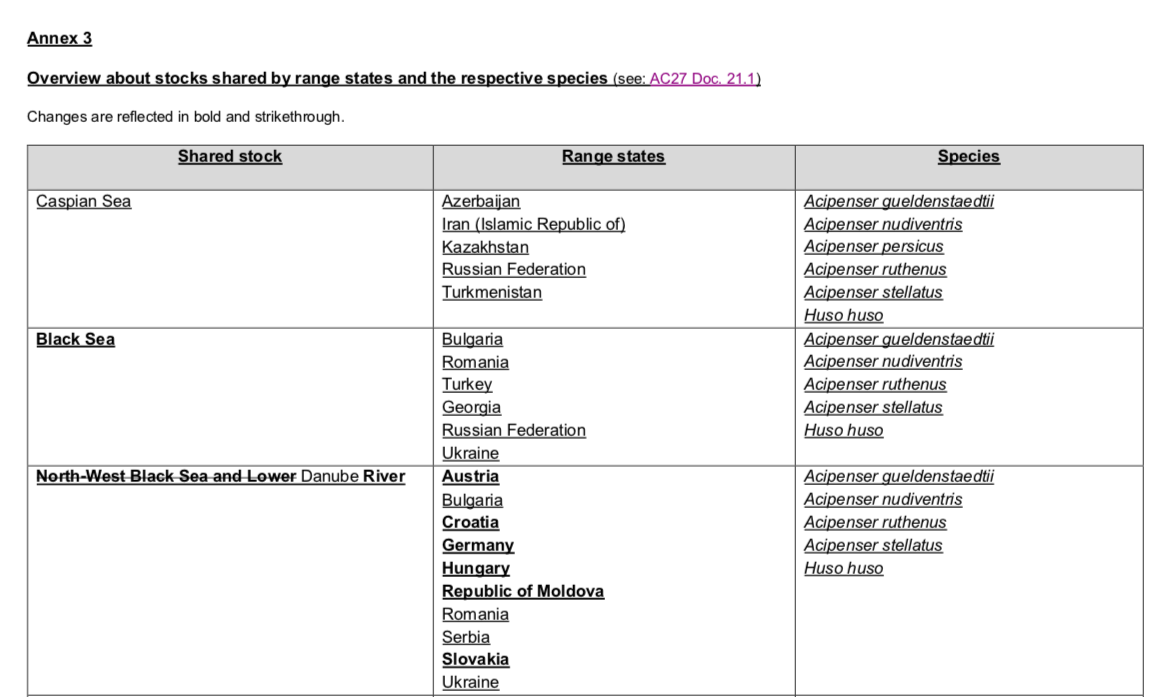
At CITES CoP16 held in Bangkok, Thailand in 2013, the CITES Standing Committee were mandated to review CITES Resolution Conf. 12.7, which outlines the mechanisms for regulating international trade in sturgeon and paddlefish. This review was deemed necessary in order to account for the dramatic global changes to the caviar industry that had occurred over the last decade - most notably the shift to aquaculture. The Standing Committee included a table entitled ‘*Overview about stocks shared by range states and the respective species*’, as Annex 3 in the revised version of CITES Resolution 12.7 (see table 8.1). This table outlines which sturgeon stocks are viewed as ‘shared stocks’ by CITES, as well as identifying: the geographic location of each stock; the range states to the stock; and the species of sturgeon that are found in that particular body of water and/or river. The table was included as a way to clarify the existing regulations, and to support and complement CITES decisions regarding sturgeon. However, the table was not a new creation: it was originally created for the CITES Animals Committee for a different use, and not intended to be included in the revisions to the resolution. Despite this, the table was inserted in the revised CITES Resolution 12.7. Wilhelm of the CITES Secretariat divulged: “I actually *know* there wasn’t a consultation of the Animals Committee [by the working group of the Standing Committee] to say ‘is that table complete?’”[[288]](#footnote-288).

Grey areas inbuilt in this table are the root cause of some geopolitical issues emerging between Black Sea range states. In fact, the ‘*North-West Black Sea and Lower Danube*’ shared stock outlined in this table, is highly geopolitically contentious. The range states listed under this stock are Bulgaria, Romania, Serbia and Ukraine. Notably, this does not cover the geographical entirety of the Black Sea (see figure 8.1), as it does not include Georgia, Turkey, or the Russian Federation as a range state. The table has therefore been described as “a bit of a strange beast”[[289]](#footnote-289), given that it does not designate the other half of the Black Sea (and the other Black Sea littoral states) into another shared stock. Thus, despite the table only being included in CITES Resolution 12.7 for illustrative purposes - and not to substantively change the regulations – the irregularities in the content of this table have had prominent geopolitical effects.



###### Table 8.1: Annex 3 of CITES Resolution Conf 12.7 - Overview about stocks shared by range States and respective species

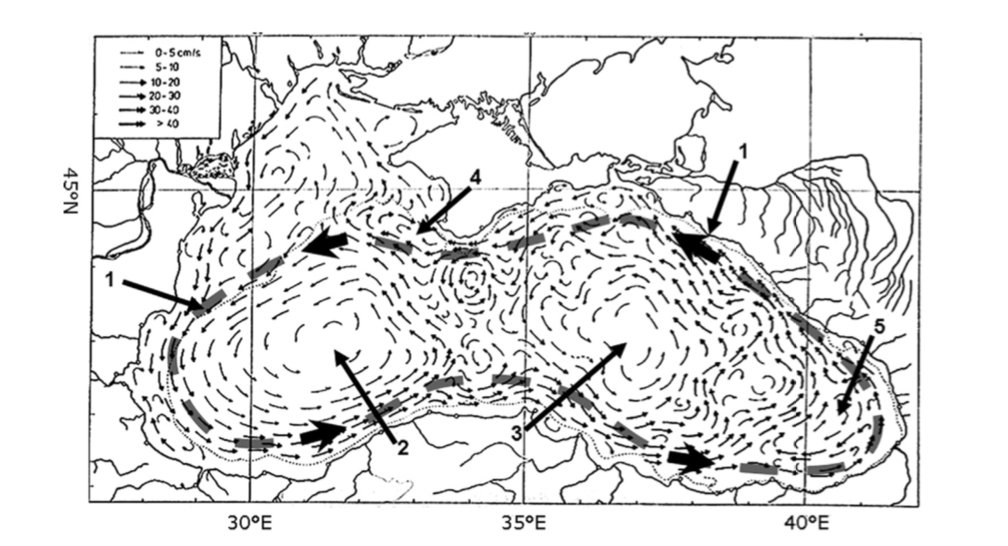
Source: CITES Resolution Conf 12.7

The omission of the Eastern part of the Black Sea from the shared stocks table has proven to be geopolitically provocative, culminating in the Russian Federation putting forward their own amendment to Annex 3 of CITES Resolution 12.7. The amendment put forward by the Russian Federation for discussion at CITES CoP17 on 3rd October 2016 in Johannesburg, included an altered table (see table 8.2) which split the current shared stock ‘*North-West Black Sea and Lower Danube*’ into two shared stocks: ‘*Black Sea*’ and ‘*Danube Rive*r’. Under the Russian Federation’s proposed amendment, the ‘*Black Sea*’ shared stock would now also include Turkey, Georgia, and the Russian Federation alongside the previously listed Bulgaria, Romania and Ukraine (Serbia would now be listed under the proposed Danube River shared stock). The Russian Federation argued the necessity of recognising the whole Black Sea as a sturgeon stock that is distinct from the Danube River. In the proposal delivered to the CITES Secretariat, the Russian Federation stated that “anadramous Sturgeons are transboundary species and can be caught near the shores of any Black Sea littoral country, not only in the North-West Black Sea” (CITES, 2017: 2).

###### Table 8.2: The proposed changes to Annex 3 of CITES Resolution 12.7 put forward by the Russian Federation at CITES CoP17

Source: <https://cites.org/sites/default/files/eng/com/sc/67/E-SC67-18-R1.pdf>

The proposal by the Russian Federation has echoes of the precautionary principle[[290]](#footnote-290): mobilising the scientific uncertainty that exists around determining how geographically discrete the sturgeon populations in the Black Sea are, as a justification for the inclusion of all Black Sea range states in stronger sturgeon management arrangements in the meantime. A representative of the CITES Secretariat explained that there exists on-going difficulty in establishing the extent of ecological separation between sturgeon stocks in the Black Sea. Ecologically, there are two main current systems in the West and East, and although there is some exchange between the two eddies, essentially they act as a natural ecological borderline in the inland sea (see figure 8.2). Despite this natural border, the question remains “how true are the sturgeon to these two eddies?”[[291]](#footnote-291). The answer to this is ecologically and geopolitically important for determining the shared stocks.



#### Figure 8.2: Scheme of the Black Sea circulation and eddy system

Source: Kubryakov and Stanichny (2015)

The lack of progress on resolving the shared-stock question resides in the fact “that the range states in the region, they’re not super keen to cooperate with each other”[[292]](#footnote-292). Wilhelm explained that the Russian Federation have put together restocking programmes, and established what they describe as ‘Genetic Passports’ for all sturgeon fingerlings that they have released into the Black Sea. The Russian Federation are cognisant of the fact that the Lower Danube countries bordering the Black Sea are also engaged in ongoing restocking programmes and scientific research activities. As such, the information these countries possess is seen as valuable for conservation, and “so what they’re [Russian Federation] saying is ‘Give us access to your data, we give you access to our data, and let’s try to solve this scientifically’”[[293]](#footnote-293).

However, there has been mounting speculation that the motivations behind the push to amend the shared stock listing is less about sharing data, and more a question of resources and territory. If the Russian Federation were to be included (alongside other countries) as part of a singular Black Sea shared stock, given the future possibility that zero-export quotas and fishing bans may be lifted, this would grant them access to fishing rights and any future sturgeon resources. Moreover, the Black Sea region is of strategic importance in terms of Russian foreign politics - particularly related to the Russian annexation of Crimea[[294]](#footnote-294). From the Russian perspective Crimea is Russian rather than Ukrainian territory, and this would therefore position Russia as a range state under the existing ‘*North-West Black Sea and Lower Danube*’ shared stock. However, the majority of international governments dispute this annexation, and organisations such as NATO have described Russia’s annexation of Crimea as “illegal and illegitimate”[[295]](#footnote-295). As such, a proposed amendment to be included under the existing shared stock designation would not be possible. Instead, the Russian Federation made a unilateral decision to attempt to persuade the CITES Secretariat to declare the Black Sea a single shared stock, thereby giving Russia greater legitimacy to a presence in the Crimean Peninsula, under the guise of sturgeon management.

Thus, the CITES Secretariat acknowledge that the controversy around the contents of the table is not just ecological, “but it also has a political component”[[296]](#footnote-296). This came to a head at the CITES 69th Standing Committee held in Geneva, Switzerland between 27th November and 1st December 2017. A representative of the CITES Secretariat present at this meeting, described the events as they unfolded:

We actually had a very tense political discussion between Ukraine and Russia, because Russia in their information document where they were outlining their reasoning for why it should be the entire Black Sea, they decided not to mention Ukraine, but to just describe geographical features. But then Ukraine intervened at that very high-level and said this is violating the United Nations General Assembly Resolution on the inviolability of the Ukrainian territory[[297]](#footnote-297).

These developments and protracted discussions highlight how the question of determining shared sturgeon stocks is not solely about the conservation and management of sturgeon, but has clear geopolitical undertones. By proposing the creation of a new shared stock, which positions the Russian Federation as a legitimate range state to the entirety of the Black Sea, the Russian Federation thereby attempt to capitalise upon the gaps in scientific knowledge around the sturgeon ecologies and the current systems of the Black Sea. By putting forward their own proposed amendments to the resolution, the Russian Federation seek to both gain access to sturgeon in the Black Sea and use this as a vehicle to legitimately establish control and influence in a geopolitically contested territory.

Thus, in returning to Rose’s assertion that the Black Sea is the ‘Wild East’, this statement directly plays upon and alludes to the frontier politics of the ‘Wild West’. In reality, the Black Sea *has* been refigured as a frontier space with littoral states vying for access to and control of the resources in its waters. By adapting grey areas in regulations to suit their geopolitical motivations, the Russian Federation attempt to use sturgeon as a mechanism by which they can gain control and influence in the region.

Nevertheless, regarding the discussions over the designation of shared stocks at CITES Cop17 and later Standing Committee meetings, no consensus could be reached amongst the parties. As such, Annex 3 of CITES Resolution 12.7 detailing the shared stocks currently remains unchanged. But, further investigation into the scientific basis of the delimitation of shared stocks is on-going. The CITES Animals Committee have subsequently encouraged:

All CITES parties bordering the Black Sea and Danube river to collaborate on research to address knowledge gaps regarding the **distribution and migration** of stocks of sturgeon species in their respective jurisdiction… to establish the basis for science-based delimitation of stocks in the Danube and Black Sea. (CITES, 2017: 2 emphasis added)

However, with existing geopolitical tensions running high in the region, it is unclear to what extent the Black Sea range states will be willing to collaborate; particularly when changes to the status quo could have far reaching implications related to sovereignty and territory.

The above statement from the CITES Animals Committee points to the transformative potential of sturgeon ‘distribution and migration’ in determining the delineation of shared stocks in the Black Sea. In order to establish the boundaries of the shared stocks, CITES parties must pay sustained scientific attention to the mobility of sturgeon and investigate: “How true are the sturgeon to these two eddies? Are they staying entirely within their own current system? Or? … They’re active swimmers so it could also be that they just don’t care?”[[298]](#footnote-298).  Thus, I argue that sturgeon migration and mobility is geopolitically and ecologically important: through their movement and mobility they have the potential to remove the grey areas in the shared-stock table of CITES Resolution Conf 12.7. In doing so, sturgeon may therefore fundamentally alter the geopolitics of sturgeon management in the EU and beyond, or entrench the current reality. This I argue, positions sturgeon as geopolitical actors. In the following section I demonstrate the necessity of rethinking sturgeon as part of the assemblage of actors and forces that actively co-produce the geopolitical realities arising from inconsistencies in caviar trade regulations.

## 8.2 Sturgeon as Geopolitical Actors

Building upon previous discussion that points to the multiple ways in which sturgeon are made subjects of geopolitics in the European Union, this section develops my argument that sturgeon are not just inert geopolitical objects – or living fossils – acted upon by human forces. Rather, I argue that sturgeon are geopolitical actors, and that their actions as living beings have a demonstrable impact upon geopolitical configurations in the EU. Centring discussion around the impacts of gaps and grey areas in caviar trade regulations, I show how sturgeons reveal some of these regulatory gaps and grey areas through their mobility and immobility; and illustrate how bringing these gaps to light has geopolitical ramifications. By demonstrating that sturgeon mobilities play an active part in the co-production of environmental geopolitics in the EU, I subsequently argue that sturgeons should be conceptualised as geopolitical actors. This discussion paves the way for considering the agentic role of nonhumans in shaping geopolitics more broadly.

### 8.2.1 ‘Delocalization’ of the caviar industry and escaped sturgeon

The definitive shift to sturgeon aquaculture for caviar production has resulted in a ‘delocalization’ of production, whereby sturgeon farms have flourished in locations outside the ecological range of wild sturgeon (Sicuro, 2018: 205). Technological developments in farming mean that sturgeon can be raised in indoor ponds in facilities in unlikely locations, such as the world’s largest caviar farm in Abu Dhabi[[299]](#footnote-299). Sturgeon are also farmed in extensive pond-systems located in aquatic environments such as China’s Qiando lake, which has 300 steel pens suspended in the lake housing over 30,000 sturgeon[[300]](#footnote-300). This dramatic delocalization of caviar production has had distinct geopolitical implications, whereby caviar ‘superpowers’ such as Russia[[301]](#footnote-301) and Iran have seen their market share of the caviar industry waning (Adeli and Namdar, 2015), with competitors from China and Europe taking larger proportions of the industry income. For example in 2017, 364 tonnes of farmed caviar was produced globally. Of this 364 tonnes, China produced in excess of 100t, while Russia produced 49t. European countries such as Italy and France produced less caviar than Russia, producing 43t and 37 t respectively in 2017; however these statistics point to the growing market share of caviar produced in the EU (Bronzi *et al.*, 2019).

The rapid delocalization of the caviar industry has unfolded with relatively little oversight from regulators. This is partly because aquaculture has been seen as the silver-bullet solution for many of the problems inherent to the caviar trade (as discussed in chapter six); and so “it’s easy for everyone to say aquaculture is legal so it’s all sorted”[[302]](#footnote-302) and turn a blind-eye to the broader impacts of caviar aquaculture. The unparalleled geographical expansion of caviar aquaculture prompted ex-enforcement officer Michael to express his concern “that insufficient attention was being given to aquaculture”[[303]](#footnote-303). Indeed, as described in chapter five, the relative lack of monitoring of sturgeon aquaculture facilities has produced opportunities for illicit caviar trade. Furthermore, the delocalization of caviar aquaculture has had geopolitical consequences that result from grey areas in regulations.

Whilst the caviar trade regulations mandate that caviar must come from farmed sources as a way of lessening the environmental impact of caviar trade upon sturgeon; I suggest that the delocalization of caviar farming catalysed by the caviar trade regulations, has produced unintended environmental and geopolitical impacts. The unintended environmental impacts of delocalized caviar production exist in a legislative grey area, and are largely unmonitored. I show how through their natural behaviours sturgeon have brought attention to some of the legislative grey gaps around monitoring of sturgeon aquaculture facilities. In particular I examine sturgeon ‘escape’ events as an unintended environmental implication of caviar farming; and I examine how such escapes have become geopolitically charged, and serve to refigure sturgeon as geopolitical actors.

Cases of sturgeon ‘escaping’ from aquaculture facilities abound. In July 2016 the mistaken discharge of floodwaters resulted in the escape of 9800 tons of farmed sturgeon into the Yangtze river system, which is the habitat of the critically endangered Chinese sturgeon (Li, Zhu and Li, 2019). This massive escape incident has prompted calls for policy improvements in China and other developing countries (Ju *et al.*, 2020), to prevent further ecological crises. However the issue of sturgeon escapes from aquaculture is also prevalent in the EU. Skóra *et al.* (2018) reported the first incidence of Siberian sturgeon in Polish waters, hypothesising that these fish must have originated from hatcheries located on the Reda river (Skóra, 2012). In December 1999 a hurricane enabled around 27 tons - circa 9000 Siberian sturgeon - to accidentally escape from a fish farm into the Gironde estuary in South-Western France (Maury-Brachet *et al.*, 2008). In the weeks following the flooding over 1000 Siberian sturgeon were recovered, however the majority had entered the local ecosystem. In Europe, “the escape of farmed Siberian sturgeon is often reported” (Ludwig *et al.*, 2009: 754). These incidents therefore point to an overlooked environmental impact of the expansion of sturgeon aquaculture, as well as exposing gaps in how sturgeon aquaculture is managed and regulated. This has prompted the UN to call on countries to develop proper policies and actions to address the threat of escapees[[304]](#footnote-304).

From a more-than-human perspective, both the weather systems and sturgeon are actors whose agencies and behaviours have environmental and geopolitical effects. But in examining the aftermath of sturgeon escape incidents it is evident how sturgeon in particular, are refigured as inherently geopolitical actors. With the aid of weather systems, sturgeon can defy efforts made to control and manage them in aquaculture facilities; and post-escape, their movement and new position in local ecologies refigures escaped-sturgeon as biosecurity threats to native species. Concerns about biosecurity can become intertwined with geopolitics, as demonstrated by scholars such as Potter, Ingram, Rappert & Lentzos in Dobson *et al*. (2013); and this intertwining of biosecurity and geopolitics is manifest around escaped sturgeon in the EU.

Evidence exists that exotic Siberian sturgeon have naturally reproduced with native endangered Sterlet (*Acipenser Ruthenus*) in the EU, as hybrids have been observed in the Austrian section of the upper Danube River (Ludwig *et al.*, 2009). Although the extent of the impact of accidental introduction of non-native sturgeon species into EU river ecosystems is largely unknown, hybridization between non-native escaped sturgeon, and critically endangered wild stocks is said to pose “a serious threat for the survival of this isolated sterlet population in the upper part of the Danube” (Ludwig *et al.*, 2009: 754). Weiperth *et al.*, (2014) also note incidences of non-native hybrid sturgeon being found in EU waters. In 2013, hybrid Adriatic (*Acipenser Naccarii*) x Siberian (*Acipenser Baerii*) sturgeon were caught in the Hungarian middle Danube. Both these species are exotic to EU waters and therefore assumed to represent the reproduction of escaped sturgeon individuals.

Irrespective of whether these exotic sturgeon species and sturgeon hybrids are able to reproduce with native sturgeon populations (thereby affecting the genetic sanctity of isolated populations), it is speculated that alien sturgeon pose threats to native species in terms of disease transmission and competition for resources. As a result, derision is often directed towards escaped sturgeon that are perceived to pose a threat to native species and delicate local ecosystems. One sturgeon farmer described escaped Siberian sturgeon as “the house pig of the sturgeon”[[305]](#footnote-305), likening the Siberian sturgeon to the EU’s proliferating population of wild boar[[306]](#footnote-306). The proliferation of wild boar has produced a geopolitical ‘battleground’ (von Essen, 2019) in the EU, which has colloquially been referred to as “the Boar wars”[[307]](#footnote-307). In this battleground non-state actors and EU Member States jostle over how to manage the invasive species. Danut expressed hope to see the same level of geopolitical attention given to the issue of escaped sturgeon. However a similar degree of attention would likely result in increased scrutiny and regulation over EU caviar aquaculture facilities – something that would inevitably impact the economic competitiveness of this burgeoning European industry on the global market. As such, there may exist geoeconomic incentives to avoid generating a similar ‘battleground’ over escaped sturgeon in the EU.

In reality, the movement, migration and reproduction of escaped sturgeon has become geopolitically charged in ways that actually serve to deflect attention from the culpability of EU aquaculture facilities in these ‘escapes’. Popular media coverage of escape events have highlighted questions of ownership, culpability and responsibility that are imbued with geopolitical tropes, and refigure the natural behaviours of sturgeon as hostile, threatening and foreign. For example, in 2007 the UK Telegraph newspaper published an article with the headline: ‘Russian sturgeon invading British waters’[[308]](#footnote-308). The article outlines that sturgeon genetically originating from Russian sturgeon species (presumably *Acipenser Gueldenstaedtii* or *Acipenser Baerii* - although this is not noted), were located in ‘dozens’ of sites across the UK. The fish were thought to have escaped hatcheries or been illegally smuggled and released for sport fishing. What is striking about the article is that the sturgeon are referred to by their genetic provenance – ‘Russian’ - irrespective of the likelihood that the fish may have been bred by UK hatcheries or acquired from other European farms. This is a powerful rhetorical method of suggesting that the sturgeon are Russian agents, invading and threatening UK ecosystems and biodiversity.

Moreover, what is particularly striking in the media reports is the use of terms more commonly associated with warfare or traditional security threats to describe the escape of sturgeon. In this case using hyperbole to refer to finding three non-native species of sturgeon in UK waters as an “invasion”. This narrative implies that culpability for these fish lies with Russia, despite zero evidence to suggest that these fish found themselves in UK waters as a result of Russian actions. This therefore feeds into prevailing narratives circulating in the popular media about British-Russia relations, and thus represents an example of what Jason Dittmer calls ‘popular geopolitics’ (see Dittmer and Bos, 2019).

In sum, I argue that sturgeon are geopolitical actors with the capacity to shape geopolitical realities. In the context discussed here the framing of sturgeon escapes as a biosecurity issue, geopolitically charges sturgeon and their subsequent behaviours in new ecosystems. The escape of farmed sturgeon brings to light the grey areas in how sturgeon aquaculture facilities are managed in the EU; as well as highlighting that whilst the caviar trade regulations mandate a shift to farmed caviar production, little consideration has been paid to the potential negative environmental implications of this shift. Furthermore, I show how the escape of sturgeon reveals interesting dynamics whereby sturgeon are rhetorically framed as foreign ‘invaders’ to EU waters. This I argue represents an attempt to deflect attention from the policy grey areas inherent to farmed caviar production in the EU: grey areas which are brought to light by the movements and behaviours of sturgeon, often aided by extreme weather events.

### 8.2.2 Endangered sturgeon vs. Energy policy

Finally, I argue that sturgeon emerge as geopolitical actors when they bring to light the grey areas where EU policy priorities collide. These priorities are typically related to issues of navigation, transport, environmental protection and energy production, and the points of tension generally arise when the ability of sturgeon to migrate is curtailed. NGOs have voiced concerns about the impact of competing EU policies upon sturgeon conservation and efforts to tackle sturgeon crime, saying “we need to make sure that other kinds of projects – navigation projects for example – doesn’t put in danger all the work we’ve done”[[309]](#footnote-309). The frictions in policy priorities have been revealed by the movement – or lack thereof – of sturgeon, which in turn has culminated in a number of on-going geopolitical debates between EU departments and Member States being brought to the fore. Through these debates sturgeon are constituted as a pivotal geopolitical actor, with the capacity to alter or shift the political priorities of geopolitical institutions. I make the argument that sturgeon should be conceptualised as geopolitical actors, by examining how the mobility of sturgeon and their capacity to migrate, is creating protracted geopolitical debates centred around hydroelectric power production versus the protection of endangered species and ecosystems.

The Danube River Basin spreads across 19 countries and is the most international river basin in the world[[310]](#footnote-310). The Danube River itself flows through 10 countries - both EU Member States and countries external to the EU - and thus the management of the river and the wider basin is an international endeavour. The Danube River and the tributary rivers in the wider Danube River Basin have been heavily modified by human activities over many centuries, with the International Commission for the Protection of the Danube River (ICPDR) estimating that the river is now regulated along 80% of its length. In particular, the rivers in the Danube Basin have been extensively dammed, with over 700 dams built along the main Danube and its tributaries. Many of these dams have been built to produce hydroelectric power, with ICPDR stating that over 30% of the length of the Danube has been impounded for hydropower generation[[311]](#footnote-311). In Romania 30% of national energy generation is supplied by hydropower; and in the upper Danube around 60% of the yearly electricity use within Austria is supplied by hydropower[[312]](#footnote-312). Clearly then, hydropower is a vital method of ‘green’ energy production in the Danube River Basin and for EU renewable energy needs more generally.

Although hydropower dams are a greener energy option in comparison to traditional fossil fuels, they are not without negative environmental impacts. Interviewees repeatedly criticised the largest hydropower dam system operating on the Danube River - the Iron Gates I and II - which is jointly operated by Romania and Serbia. The dam system is seen as ecologically destructive and a “problem”[[313]](#footnote-313) that needs to be solved imminently in order to conserve remaining wild sturgeon populations. Danut explained that “through the dam which they built on the Danube, the sturgeon couldn’t reach anymore the hotspots for reproducing. So there are now very few spots where they can reproduce”[[314]](#footnote-314). As such, sturgeon in the lower Danube are unable to migrate to historical spawning grounds in the upper reaches of the Danube, with their migration routes being curtailed at the Iron Gates Dam. Irini recognised the serious hindrance that dams have played to the survival of wild sturgeon populations, speculating that, “*if* Romania still has some population that is reproducing naturally it’s *only* because we have 1000km of the Danube free below the Iron Gates with no dam”[[315]](#footnote-315). Indeed, ICPDR state that the Iron Gates dam is responsible for sharp declines in Danube Sturgeon species and has had ‘transboundary effects’[[316]](#footnote-316) upon the wider ecologies in the Danube River Basin. It is these concerns about the impacts of hydropower infrastructures on endangered sturgeon populations that are the basis of the geopolitical discussions that have come to the fore.

Through the impediment to their movement sturgeon have become politicised figures, sparking debates around the relative merits of hydropower. As sturgeon come face to face with dams, many prominent figures in sturgeon conservation have begun to voice their concerns about HEP. A representative speaking on behalf of the World Sturgeon Conservation Society at ISS8, declared that “we fragment rivers for almost nothing”, explaining that small and medium dams make up almost 70% of the dams on the Danube but produce only 8% of the power, making them “totally ineffective”[[317]](#footnote-317). Consequently, conservation NGOs such as WWF International have declared that “we are entitled to question hydropower”, and argued that “the wider conservation community needs to up its work on HEP”[[318]](#footnote-318).

However, reactions to these criticisms have revealed a powerful conflict of interest between EU environmental policies that prioritise human needs, versus those that prioritise biodiversity conservation. For example a representative of DG Environment of the European Commission spoke at ISS8 in Vienna, and emphasised that there is an urgent “need for cleaner energy” in the EU, acknowledging that HEP is an important component of climate change policies that “we cannot hijack”[[319]](#footnote-319). There is a distinct sense then, that energy requirements and conservation requirements currently have different, sometimes competing, objectives in EU environmental policy. This is something that WWF International has reduced to “a conflict of interest between different human needs versus sturgeon needs”[[320]](#footnote-320). The ‘challenge’ as outlined by the representative of DG ENV, is reconciling the restoration of habitats for sturgeon (and other species) with the human needs that are “directly linked”[[321]](#footnote-321), such as the need for cleaner energy, and the jobs HEP provides.

What is proving an impediment to effectively reconciling these policy frictions is that different departments of the European Commission are seen to be operating in silos. For example, it was said that DG MOVE in the European Commission, was “completely oblivious to the EU Water Framework Directive, or how the navigation sector is implicated in the trade of sturgeon and the damage of sturgeon habitats”[[322]](#footnote-322). Even *within* EU departments there are demonstrable tensions in policy priorities - as evidenced by the admission from DG ENV that the department prioritises climate change policies and these cannot be ‘hijacked’.

Geopolitically, issues of policy harmonisation amongst EU departments are problematic. Not least, because as a powerful agenda setting environmental actor the EU needs to coordinate sectors and set the standard for Member States in a substantive way. Juliani, director of a regional NGO recognised the problems that exist for sturgeon conservation without clear direction, leadership or mandates from the European Union, saying:

We need someone pushing, taking charge. Coordination is really key here because it’s a fish who requires really coordination between all the Danube countries… it is mandatory that we work together, but we need direction from above[[323]](#footnote-323).

In this regard, through their inability to migrate sturgeon reveal the grey areas where EU policies collide, and highlight how human needs are ultimately prioritised over sturgeon protection. An impact of sturgeon revealing this grey area in competing environmental regulations, has been that sturgeon are increasingly enlisted by NGOs as a “powerful communication vehicle”[[324]](#footnote-324), to put pressure on the EU to reconcile EU policies in ways that do not negate sturgeon conservation efforts. It has been emphasised that the “communications power of these charismatic species should be harnessed for conservation”[[325]](#footnote-325) and can be geopolitically transformative.

For example, ICPDR are proponents of defining sturgeon as a ‘flagship species’ in Europe, and are increasingly deploying this term to gain support for their sturgeon conservation agenda. As a result ICPDR have taken the preeminent role in advocating for restoring fish migration routes in the Danube River Basin through their ‘Sturgeon Strategy’[[326]](#footnote-326) and the activities of the Danube Sturgeon Task Force. Subsequently, the ICPDR have gained support from DG REGIO and DG ENV of the European Commission, to undertake activities such as a feasibility study to determine how to improve fish migration at the Iron Gates dam. This study complements the objectives of priority area 4 (Water) and 6 (Biodiversity) of the EU Strategy for the Danube Region[[327]](#footnote-327), thereby illustrating that different EU policy areas and aims can be reconciled under a holistic approach, without being at the expense of sturgeon or human needs. Thus, just as the Iron Gates Dam and other dams in the Danube River Basin have had ‘trans-boundary effects’, the ‘communication power’ of sturgeon is also shown to have counter ‘trans-boundary effects’. The communication power of sturgeon has been enrolled to challenge the further expansion of HEP in the EU; and to find ways to reconcile the grey areas in the competing EU environmental policies that sturgeon have revealed.

Thus, in this example, sturgeon are geopolitical actors in two ways. First, through their inability to migrate they bring to light competing policy priorities within the EU, which catalyse protracted and sometimes heated debates around human needs versus conservation needs. Second, sturgeon are mobilised as a ‘communicative vehicle’ in order to reconcile competing policy priorities and to promote greater harmonisation between EU departments, Member States and NGOs.

## 8.3 Conclusion

In this chapter, I argue that is necessary to conceptualise sturgeon as being geopolitically important. In particular I examine how sturgeon are transformed into geopolitical subjects. This is demonstrated by the actions of geopolitical actors who exploit grey areas in the regulatory frameworks designed to prevent sturgeon crimes, as a way of managing and controlling sturgeon in order to achieve their underlying geopolitical goals. Moreover, I argue that sturgeon are geopolitical actors, and show how their movements, materialities and ecologies shape the outcome of geopolitical configurations in the EU. Rather than inert ‘living fossils’, I have illustrated that sturgeon are a species intrinsically intertwined with, and co-producing of geopolitics.

Gaps and grey areas in caviar trade regulations are central to the constitution of sturgeon as unlikely geopolitical subjects and actors. Geopolitical actors seek out irregularities and ambiguities in regulations in order to utilise sturgeon as resources they can access and control to meet their wider geopolitical goals. But sturgeon themselves also bring to light inconsistencies in regulations, and in doing so catalyse responses from a range of actors including NGOs, EU institutions and EU Member States, which have geopolitical consequences. Thus, I argue that sturgeon have a distinct role to play in co-producing the multifaceted geopolitical discussions and realities that arise from sturgeon movements and ecological behaviours.

In sum, examining the implications of gaps and grey areas in caviar trade regulations is revealing of unique geopolitical impacts that extend far beyond the remit of regulating the trade in caviar in the EU. The discussion shows that gaps and grey areas in regulations are not only sought out by poachers or organised criminal groups for the purposes of illegal caviar trade, but that these legislative discrepancies are capitalised upon by political actors for broader geopolitical purposes. The gaps and grey areas in regulations to prevent sturgeon crime therefore have far-reaching implications that move beyond the more localised security impacts discussed in chapters six and seven; and the impacts upon the political ecologies of illicit caviar trade discussed in chapters four and five. Sturgeon reveal these regulatory omissions and ambiguities, and in doing so co-produce the subsequent geopolitical responses. This therefore situates sturgeon as geopolitically significant.

Finally, it is important to dwell on why it is necessary to think about sturgeon as both geopolitically significant, and geopolitical actors. I argue that giving space for conceptualising the agency of nonhumans – in this case thinking about sturgeon as ‘living encyclopaedia’ rather than ‘living fossils’ – allows us to take more seriously the definitive role that nonhumans play in co-producing our geopolitical realities. Accepting that nonhumans can illustrate where policies and regulations prove to be unsuccessful or lacking, opens up avenues for producing policy that is more attuned to the needs of nonhumans and their role in geopolitical-ecologies.

# Chapter 9: Conclusion

## 9.0 Introduction

This research demonstrates that caviar trade regulations have had unintended geopolitical-ecological implications in the European Union. The caviar trade regulations and associated policy mechanisms have indelibly shaped dynamics of illegal caviar trade in the EU. However, the regulatory frameworks have also had wider ramifications for EU geopolitics, economies, and environments. These broader consequences are catalysed by a number of gaps and grey areas in the regulatory frameworks. Moreover, sturgeon and caviar bring to light and interact with the inconsistencies and absences in policy, in ways that are inherently geopolitical. Thus, in analysing the multifaceted effects of the EU caviar trade regulations, I ultimately conclude that both caviar and sturgeon have a distinct role in shaping the unintended geopolitical-ecological implications of the regulatory frameworks. To this extent, sturgeon and caviar are unlikely geopolitical actors.

Caviar trade in the European Union is regulated via the EU Wildlife trade regulations, which over the last two decades have set out a number of policy mechanisms and related enforcement strategies that are designed to prevent illegal caviar trade and limit overexploitation of endangered wild sturgeon populations in the EU. However, within policy and scholarly circles alike, the impacts and effects of the implementation of caviar trade regulations have garnered limited attention beyond a narrow focus on levels of seizures of contraband caviar. Taking the legal frameworks and regulatory mechanisms as the starting point of analysis, I followed-the-policy (Peck and Theodore, 2012) to ascertain how caviar trade policies have shaped the geopolitical-ecologies of caviar trade in the European Union. The findings of this research therefore shed necessary empirical light upon the broad – and largely overlooked – implications of regulating caviar trade in the EU.

Throughout this thesis I develop ‘more-than-human geopolitical ecology’ as the theoretical framework to elucidate my arguments and conclusions. This framework synthesises and enlivens approaches from environmental geopolitics (O’Lear, 2018, 2020) and geopolitical ecology (Bigger and Neimark, 2017; Belcher *et al.*, 2019; Francis Massé and Margulies, 2020), through a more-than-human theoretical lens. I develop this theoretical framework based upon my conclusions outlined in chapter two. Namely, that whilst useful foundations for theorising how “large geopolitical institutions emerge as key environmental actors” that “define, control and manage nature” (Bigger and Neimark, 2017:20); neither geopolitical ecology nor environmental geopolitics approaches can adequately account for the role of sturgeon and caviar in shaping the intersections of geopolitics, political economy, and environmental change that emerge through efforts to regulate caviar trade in the EU. Rather, the two approaches can only go as far as to explain how caviar and sturgeon are positioned as geopolitical subjects that large environmental actors seek to manage. To this extent, the theoretical framework developed in this thesis makes an original contribution by pointing to the wider importance of theorising the role of nonhuman nature as an active force that co-produces geopolitical-ecologies alongside human actors.

In section 9.1, I first outline how I have categorised the major gaps and grey areas in EU caviar trade policies according to three classifications: gaps in legislative content; gaps in implementation and enforcement; and gaps in policy narratives. In section 9.2 I draw out thematic conclusions to answer the main question guiding this research, namely: *what are the geopolitical-ecological implications of regulating the caviar trade in the European Union*? I conclude that the caviar trade policies have implications for: illegal caviar trade and the caviar industry; hidden political ecologies; security and power; sturgeon geopolitics and caviar diplomacy. Finally, in section 9.3 I consider the questions and trajectories for further research which emerge from my analysis.

## 9.1 Policy gaps and grey areas

Following the caviar trade policies and analysing their variegated implications in the European Union, exposed a number of idiosyncrasies and omissions within the legislative frameworks. These policy ambiguities have greatly influenced the overall impacts of the caviar trade regulations within the EU; and are the root cause of many of the unintended outcomes of the policies. Furthermore, sturgeon and caviar play a role in illuminating the multiple flaws in the permutations of the EU caviar trade policies. Overall, my analysis indicates that the legislative gaps and grey areas fall under three interrelated categories: holes in legislative content; inconsistencies in the implementation and enforcement of the caviar trade regulations; and gaps in the dominant policy narratives that frame and shape the on-going regulation of caviar trade in the EU.

First, there are significant gaps and grey areas in the content of the regulations. I describe the content of the EU caviar trade regulations in chapter four, before drawing attention to some of the ambiguities in these policy mechanisms. One such grey area exists in the universal caviar labelling system, where there is a lack of specification about the design of mandatory labels for tins of caviar sold on both domestic and international markets. Legislative irregularities also exist around the issuance of permits for scientific fishing of wild sturgeon in EU sturgeon range states (as discussed in chapter eight). Furthermore, scientific grey areas abound in the designation of the ‘*North-West Black Sea and Lower Danube*’ shared stock in CITES Resolution Conf 12.7 (see chapter eight). The ecological distribution of sturgeon is the crux of the scientific uncertainties; and thus understanding the behaviours of sturgeon becomes imperative for resolving both the policy ambiguities and the ensuing heated geopolitical debates.

There are also oversights in the content of the regulatory mechanisms. A significant omission is the lack of provisions for fishing communities whose livelihoods have been criminalized by caviar trade regulations. The socio-economic consequences of this policy gap are acute (with spill-over effects for sturgeon and EU environments), and I discuss them in chapter four. A further omission in the content of caviar trade policies (examined in chapter six) is that the ethical dimensions of sturgeon farming have been overlooked in the policy shift towards farmed caviar production.

There are also gaps and grey areas in the implementation and enforcement of caviar trade policies within the EU. Chapter four demonstrates that the implementation of a mandatory labelling system for caviar sold on domestic EU markets is uneven amongst EU Member States. Such inconsistencies in implementation undermine the effectiveness of the labelling system and provide loopholes for illicit trade. Moreover, chapter five reveals that there are gaps in the enforcement of caviar trade policies in the EU. Despite being advocated for as long ago as 2006 at a European Commission workshop on enforcement against sturgeon crimes, there remains a lack of widespread isotope or DNA testing of caviar by customs authorities in the EU. The lack of caviar testing is linked to a further issue that impedes enforcement capacity: gaps in funding. Customs in Western European Member States are unable to test caviar indiscriminately due to the high costs of testing; and in EU sturgeon range states such as Romania, enforcement control operations are limited by a lack of sophisticated boats, enforcement technologies, and inadequate fuel supplies.

Despite evidence to suggest that caviar-repacking facilities and farmed caviar production facilities have a role to play in illegal caviar trade (as discussed in chapter five), these facilities are not routinely inspected by enforcement authorities, which points to another hole in the enforcement-chain. Finally, there is a wider problem with gaps in enforcement knowledge. Enforcement officials may have limited understanding about sturgeon and caviar specifically, or CITES issues more broadly; and the downgrading of sturgeon and caviar as a CITES priority in the EU is likely to only worsen general enforcement knowledge on sturgeon crimes. Thus, my analysis illuminates manifold gaps and grey areas in the implementation and enforcement of caviar trade regulations in the EU.

Furthermore, I conclude that the EU caviar trade regulations are shaped and sustained by a number of dominant policy narratives, which are marred with inconsistencies and selective oversights. In particular, Western European policymakers and enforcement authorities have promulgated narratives that selectively deploy seizure data to proclaim that illegal caviar trade has been replaced as a result of regulatory changes in the EU (see discussion in chapter four). However, the seizure data that these narratives rely upon is flawed and incomplete. As such, these policy narratives are riddled with grey areas and inconsistences. Nevertheless, these narratives have largely taken root in the EU, garnering little critical appraisal in the process. Moreover, in chapter six I examine the dominant policy narrative that positions farmed caviar production as an example of ‘conservation farming’ (Gentry *et al.*, 2019) and ultimately the conservation panacea for endangered wild sturgeon. This narrative overlooks important socio-economic-political factors that serve to cast doubt over the conservation potential of farmed caviar production; and I therefore conclude that the conservation benefit of farmed caviar production remains a policy grey area.

Finally, I conclude that the dominant policy narratives focusing on the ostensibly dissipating security implications of illegal caviar trade in the EU, fail to acknowledge that the regulatory frameworks have shifted the nature of organised crime and illegal caviar trade in ways that produce new security threats and configurations in the EU. I critique this oversight in policy narrative in chapter seven; and instead highlight the alternative and competing security framings, which flesh out some of the gaps in the dominant EU-level security narratives.

In sum, this thesis brings to light the manifold legislative gaps, grey areas, absences and weaknesses in the caviar trade regulations in the EU. My analysis highlights how sturgeon draw attention to these discrepancies in caviar trade policies through their natural behaviours and inability to migrate (see discussion in chapter eight); and how caviar can confound classification and thereby point to issues inherent to both the labelling system and enforcement activities in the EU (see discussion in chapter five). I therefore categorise these policy flaws according to: gaps in the content of caviar trade legislation; gaps in implementation and enforcement of caviar trade regulations; and gaps in the policy narratives that sustain and shape the nature of the regulatory environment in the EU. Ultimately I conclude that that these regulatory gaps and grey areas have produced unintended geopolitical-ecological implications in the EU, which extend beyond regulating dynamics of illegal caviar trade. I discuss these unintended geopolitical-ecological implications of the regulatory frameworks in the following section.

## 9.2 Implications of regulating the caviar trade in the EU

This thesis set out to answer: *what are the geopolitical-ecological implications of regulating the caviar trade in the European Union*; and I have subsequently demonstrated that the caviar trade regulations have had multifaceted, multi-scalar, and more-than-human implications in the EU. To provide conclusions to the research questions, I synthesise the lines of argument developed across the thesis according to the following themes that emerged from my analysis: illegal caviar trade and the caviar industry; hidden political ecologies; security and power; sturgeon geopolitics and caviar diplomacy. These intersecting themes encapsulate the geopolitical-ecological implications of the caviar trade regulations in the EU, and speak to the theoretical framework for more-than-human geopolitical ecology that I outlined in chapter two.

### Illegal caviar trade and the caviar industry

Clearly the principle implication of implementing caviar trade regulations and restrictions upon the catch and harvest of wild sturgeon in the EU, has been the wholesale shift from wild caught caviar to farmed caviar production. Between 1998 and 2006, 97% of the EU’s caviar imports were from wild-caught sturgeon (Engler and Knapp, 2008: 12); but by 2015, 95% of all global exports of caviar by weight were caviar shipments produced by aquaculture methods (Harris and Shiraishi, 2018: 8). This transformation of the caviar industry has been achieved due to the implementation of strict export quotas, and the increasing rollout of sturgeon fishing bans in the EU and beyond.

The significant changes to the caviar industry are viewed in overwhelmingly positive terms by EU policymakers and enforcement officials in Western European member states, as well as caviar industry representatives. Indeed, there is a shared sense amongst these actors – which I explore in chapter four - that the wholesale shift to farmed caviar production has dramatically reduced levels of criminality associated with illegal caviar trade, and is easing pressure on wild sturgeon. This is evidenced by reference to the massive reductions in recorded seizures of contraband caviar in the EU over the last two decades. However, my analysis in chapter four scratches beneath the surface of the seizure data used to stabilise these policy narratives, to reveal that the caviar seizure data is incomplete and riddled with inconsistences. Moreover, the seizure data does not capture the nuances of sturgeon-poaching dynamics in EU Member States; and given the fraudulent trade mechanisms described in chapter five, and gaps in the enforcement chain across the EU, it is therefore unlikely that the seizure data reflects the true extent of illegal caviar trade and criminality in the EU. In this regard, the proclamations made by some policymakers and enforcement officials represent a narrow view of the impact of the regulations on illegal caviar trade and the EU caviar industry.

Rather, in assessing the broader implications of the wholesale shift to farmed caviar production in the EU, I conclude that illegal caviar trade has simultaneously adopted new guises that take advantage of loopholes and ambiguities in the regulatory frameworks. Illegal caviar trade is known to increasingly take place through ostensibly legal channels, as discussed in chapter five. I highlight how gaps in enforcement enable illegally harvested caviar to be laundered into sturgeon farms or caviar repackaging facilities, and sold as ‘legal’ product on the EU market. Moreover, I theorise the agentic role of caviar and its ‘unknowable’ material properties: arguing that the ambiguous materiality of caviar intersects with loopholes in the regulatory frameworks, with the consequence of establishing a caviar ‘grey market’ (Mackenzie and Yates, 2017) in the EU. This discussion reemphasises the necessity of engaging with the vital material properties of nonhuman objects in order to understand macropolitical processes such as the emergence of the caviar grey market. I conclude that the EU caviar grey market is characterised by the deep intertwining of the legal and illegal caviar industries – so much so, that the two are impossible to disentangle.

To this extent, I problematize the prevailing view that EU caviar trade regulations have destabilised illegal caviar trade. On the contrary, I conclude that loopholes and inconsistencies in the regulatory frameworks have shifted the mechanisms of illegal trade, and fostered the development of the grey caviar market in the EU. By applying a more-than-human lens of analysis I demonstrate that the micropolitical properties of caviar have macropolitical implications. Thus, the caviar grey market and emergent forms of illicit caviar trade are arguably unintended (and overlooked) geopolitical-ecological implications of regulating caviar trade in the EU.

### Hidden political ecologies

The gaps and grey areas in caviar trade regulations have had various hidden political ecological impacts. Caviar trade regulations have had unequal economic and ecological impacts, which serve to entrench already existing inequalities in the European Union, as well as producing new forms of systemic subordination for both human and nonhuman actors alike.

Despite what the dominant policy narratives would suggest, caviar trade regulations in the EU have not been wholly positively received. Rather, NGO representatives who work directly with sturgeon fishing communities, expressed their concerns that the EU regulatory mechanisms have catalysed broad changes to the caviar industry without providing alternative employment options or compensation for those fishing communities whose livelihoods have been criminalized. The ‘delocalization’ (Sicuro, 2018) of the caviar industry combined with the extension of fishing bans in sturgeon range states, has entrenched economic insecurity in the Danube delta where 90% of fishing communities live in near-poverty (Daea, 2019). The lack of provision directed at easing the socio-economic burden of the regulatory changes upon sturgeon fishing communities, is a significant gap in EU caviar trade policies.

Moreover, NGO representatives suggested that the resultant economic insecurity has prompted some sturgeon fishermen to turn to sturgeon poaching. In this sense, sturgeon fishermen take advantage of another weakness in the EU regulatory frameworks: lax enforcement of legislation, which makes it unlikely for poachers to be caught or prosecuted for committing sturgeon crimes. Thus, I conclude that EU caviar trade policies have exacerbated deep-rooted inequalities that exist in the caviar industry. The regulatory frameworks have unequal socio-economic impacts that reinforce inequalities between the caviar industry – which largely benefits from the regulatory changes – and fishing communities in sturgeon range states, whose livelihoods have become more insecure as a result of the regulatory changes.

The oversights in EU caviar trade regulations also have hidden political ecological implications for sturgeon. The policy move towards farmed caviar production provides a loophole which effectively absolves the caviar industry from taking responsibility for in-situ sturgeon conservation (as discussed in chapter four). Building on this further, in chapter six I demonstrate how the caviar industry present farmed caviar production as a conservation method in and of itself, rather than engaging in in-situ conservation initiatives. To this extent, the regulatory frameworks have enabled a side-lining of attention to in-situ conservation of wild sturgeon, in favour of expanding farmed caviar production in the EU. This may compound the ecological insecurity of wild sturgeon; which is further exacerbated by increasing poaching pressure and other stresses including pollution, habitat destruction, and blocking of migratory routes. Practical conservation buy-in from the caviar industry is seen as essential to prevent the extinction of sturgeon in the wild, but as it stands this practical commitment is limited because it is not mandated by the regulations. Even regulatory bodies such as DG Environment, who are responsible for advocating for sturgeon conservation policy in the EU have ambiguous environmental priorities. Chapter eight reveals frictions in EU environmental policy, which ultimately prioritise human energy needs over sturgeon needs, and may ultimately impede regional sturgeon conservation efforts.

Finally, there are more-than-human political ecological implications for sturgeon in captivity. In chapter six I demonstrate that the EU caviar trade policies exhibit a gap, in that they do not engage with the grey areas around the ethics of farmed caviar production. This can result in unethical farming practices and the overwhelming objectification of farmed sturgeon.

In sum, I conclude that the gaps and grey areas in EU caviar trade policies have hidden political-ecological implications for sturgeon fishing communities and sturgeon. These political-ecological implications are overwhelmingly ‘hidden’ because they are overshadowed and obscured by the dominant policy narratives that are told about the impacts of caviar trade regulations in the EU. Indeed, I argue that these hidden political-ecological impacts add necessary nuance to the policy narrative examined in chapter four: that sturgeon crimes have been replaced by the regulations; and the narrative explored in chapter six: that farmed caviar production is a conservation panacea for sturgeon.

### Security and power

The caviar trade regulations also have implications for security dynamics in the EU. More specifically, I conclude that the gaps and grey areas in EU caviar trade policies produce numerous – sometimes conflicting – security narratives amongst key actors in the caviar trade milieu in the European Union. The manifold security framings elicit various security-oriented responses. However the security responses that gain traction, are the ones that are promulgated by powerful geopolitical actors and stabilised with reference to dominant security narratives. As a result, the hegemonic security narratives and related responses largely serve the agendas of more powerful groups, and can have negative implications for the security of those human and nonhuman actors with less power.

Moreover, although the conservation credentials of farmed caviar production is overwhelmingly unclear, a powerful narrative has emerged that positions farmed caviar production as the conservation panacea for sturgeon. Proponents of this narrative use the ‘green pretext’ (Ojeda, 2012) of sturgeon conservation to pursue the discursive and material securitization of farmed caviar production, as outlined in chapter six. Conservation-security narratives are deployed, which point to a double threat of sturgeon extinction and organised crime in order to justify the extension of security logics into the physical infrastructures and practices of farmed caviar production. This process of securitization is framed around the notion that producing more farmed caviar will ease pressure on wild sturgeon. However the securitized responses create more tangible opportunities for capital accumulation, rather than demonstrable sturgeon conservation impact. Farmed caviar production therefore represents an example of ‘accumulation by securitization’ (Massé and Lunstrum, 2016). As such, I conclude that the EU caviar trade policies have grey areas regarding the conservation benefit of farmed caviar production. But irrespective of this, the conservation-security narrative is powerful enough to justify a discursive and material securitization of farmed caviar production, in ways that outwardly benefit the caviar industry over sturgeon.

A further security implication of the regulations, relates to the dissolving of illegal caviar trade as a security issue at the highest EU policy levels. The basis of this security narrative and related responses, is the previously discussed – and critiqued - narratives that present illegal caviar trade as a minor criminal issue in the EU, and therefore a minor security issue. However, regulatory inconsistencies enable sturgeon crimes to continue; and a ramification of this is that security configurations in the EU have shifted rather than dissolved, as shown in chapter seven. To this extent, alternative security framings have emerged and evolved in EU sturgeon range states, which challenge the dominant EU security narratives, and in the process elicit responses that are infused with security logics and technologies. The role of organised crime in shaping illegal caviar trade is presented as an evolving threat to national and regional security by NGOs working in sturgeon range states. This security framing has prompted NGOs to develop securitized surveillance responses, which have troubling implications for already insecure fishing communities, and those tasked with carrying out surveillance.

Moreover, an emerging – yet silenced – security framing, is that which highlights the ‘ecological security’ implications for sturgeon and EU habitats, which is compounded by the nexus between organised crime, government corruption, and demand for caviar in Western European states. Individuals espousing these security narratives are silenced and treated as a threat to ‘national security’ by the Romanian government. This is because the ‘ecological security’ narratives draw uncomfortable attention to security issues emanating from within EU Member State governance structures, rather than solely targeting an abstracted external threat of organised crime. Nevertheless, these alternative security framings and responses do not possess enough power to challenge the dominant EU security narratives, which continue to position illegal caviar trade as a dissolving security issue in the EU.

In sum, I conclude that the EU caviar trade policies have implications for the security framings and responses directed at farmed caviar production and illegal caviar trade in the EU. Dominant security responses are stabilised by powerful security narratives, which reflect the already existing power geometries in the European Union. Thus, an overlooked consequence of the dominant security narratives and responses, is that they often contribute to or entrench insecurity for marginalised human and nonhuman actors in the EU.

### Sturgeon geopolitics and caviar diplomacy

Finally, the gaps and grey areas in caviar trade regulations have implications for EU geopolitics. The geopolitical consequences of the ambiguities in the regulatory frameworks, are inherently more-than-human in nature. In other words, I conclude that sturgeon and caviar are geopolitical actors whose interaction with the caviar trade policies has geopolitical-ecological implications.

Geopolitical actors exploit irregularities in EU caviar trade regulations to advance their own geopolitical motivations, and in the process produce further geopolitical consequences. This is evidenced in chapter seven where I demonstrate that EU institutions deploy narratives with grey areas, in order to de-securitize illegal caviar trade at the policy level. In doing so, the EU discursively shifts illegal caviar trade from an EU-wide security issue to a conservation issue in sturgeon range states. This is a geopolitically motivated move that effectively diverts attention from the EU-wide political economy of illegal caviar trade, and thereby absolves Western European Member States of their complicity in fuelling this trade. Additionally, the Biodiversity directorate of the Romanian Ministry of Environment selectively use legislative ambiguities around scientific fishing permits, in order to secure exclusive access to data on sturgeon, which they can deploy in geopolitically expedient ways. As outlined in chapter eight, the pushback against the actions of the Biodiversity Directorate has become geopolitically charged; particularly as NGOs struggle to amass support from the EU in order to challenge the questionable behaviours of the Romanian government.

Furthermore, incendiary geopolitical debates discussed in chapter eight, have surfaced at CITES meetings where the Russian Federation have led calls to make changes to the countries listed as littoral states to the ‘*North West Black Sea and Lower Danube*’ shared stock. The scientific uncertainty surrounding the designation of this shared stock is acted upon by the Russian Federation to ostensibly gain access to sturgeon; but in reality the move is linked to fraught questions of sovereignty and territory in the Ukrainian Crimean peninsula.

Importantly, sturgeon and caviar are not only subjects of geopolitical efforts to manage and control them; but they interact with caviar trade regulations and bring to light discrepancies within these regulatory frameworks. Their behaviours and properties have geopolitical consequences. As such, they are constituted as geopolitical actors. Through their migratory movements sturgeon reveal the contradictions in EU environmental policy agendas. This raises pertinent geopolitical questions which I discuss in chapter eight, about the prioritisation of conserving endangered wild sturgeon, versus meeting human demands for clean energy in the EU. Furthermore, the escape of sturgeon brings to light regulatory gaps in the management of sturgeon aquaculture facilities in the EU. Sturgeon escapes become geopolitically charged, as sturgeon are discursively refigured as biosecurity threats and foreign ‘invaders’ to EU waters.

Caviar is also a geopolitical actor. I demonstrate that the micropolitical material and chemical properties of caviar interact with loopholes in the regulations to have macropolitical effects, including the formation of a caviar grey market in the EU. The micropolitical material properties of caviar also have implications for international relations. Geopolitical actors such as Putin, purposefully enrol the grey material characteristics of caviar to unsettle diplomatic situations. In this sense caviar is a more-than-human geopolitical actor that co-produces geopolitical configurations and phenomena.

In sum, I conclude that the gaps and grey areas in EU caviar trade regulations have more-than-human geopolitical-ecological implications that are co-produced by both sturgeon and caviar, as geopolitical actors.

## 9.3 Looking forward

This research shed important empirical light on the hitherto overlooked implications of regulating the caviar trade in the European Union. I have centred my analysis on the gaps and grey areas in caviar trade regulations, to argue that the EU caviar trade policies have had broad geopolitical-ecological implications that extend beyond just an impact on the dynamics of illegal caviar trade. In fact, I conclude that the regulatory frameworks have had implications on and for: illegal caviar trade and the caviar industry; the political ecologies of sturgeon fishing communities and wild sturgeon; security configurations and power geometries in the EU; and EU geopolitics. Moreover, I have developed more-than-human geopolitical ecology as the theoretical framework to on the one hand, make sense of the avowedly more-than-human impacts of the EU caviar trade regulations; and in line with this, to theorise how sturgeon and caviar are constituted as geopolitical actors that co-produce the unintended outcomes of caviar trade regulations in the EU.

Following the policy (Peck and Theodore, 2012, 2015) as it translates across different contexts and between different actors in the EU caviar trade and sturgeon conservation milieu, proved to be an exhilarating and sometimes frustrating experience. However, these frustrations ultimately proved to be productive, as it was only through struggling to follow policy that I came to settle on following the gaps in policy – which adds a new dimension to existing follow-the-policy methods in the social sciences. My experience of following caviar trade policy in the EU has unearthed a number of further questions and themes, prompting me to consider both the policy implications of my research, and the potential trajectories for future research.

First, I propose the following recommendation for policy related to caviar trade, as well as outlining areas where there is a distinct need for policy driven research. My research raised questions about the conservation potential of farmed caviar production in the EU. Ultimately the conservation benefit of farmed caviar production remains a policy grey area, as it has not been demonstrated in a tangible or systematic manner. To this extent, there is a need for policy driven research that thoroughly assesses farmed caviar production as a supply-side conservation tool. Conservation biologists have developed frameworks to examine other examples of conservation farming (Phelps, Carrasco and Webb, 2014; Tensen, 2016; Challender *et al.*, 2019), and have overwhelmingly concluded that the conservation benefit of these initiatives is questionable. I expect that the same conclusions would be made about farmed caviar production; and thus, such research is greatly needed in order to shift existing policy narratives and priorities. In the meantime, for farmed caviar production to have any demonstrable conservation impact in the EU, I would recommend that EU institutions and EU Member States generate legislation that mandates businesses producing caviar to engage in specific sturgeon conservation actions, of which their compliance would be monitored. This is in line with Kirkpatrick and Emerton's (2010) suggestions that tiger farming would have a conceivable benefit for wild tigers, if business interests were excluded and the government of China exerted iron-clad control over the system, and all profits were funnelled into tiger conservation. Arguably it is not feasible for the EU to exert complete control over sturgeon farming, or to entirely divorce business interests from the process. However a concerted effort to bring farmed caviar production in line with sturgeon conservation via new regulatory mechanisms, could have a positive impact for sturgeon conservation in the EU.

The process of conducting this PhD research has also revealed future opportunities to build upon the theoretical and empirical foundations of this thesis. My analysis and theoretical arguments regarding the caviar ‘grey market’ in the EU have raised pertinent questions about the potential to develop the grey market framework more broadly for other examples of wildlife trade that have both legal and illegal dimensions. I am interested in further theorizing grey markets for wildlife products as a specific geopolitical-ecological phenomenon that emerges from inconsistencies in wildlife trade regulations and is simultaneously shaped by the “properties, energies, and potentialities” (Sundberg, 2011: 318) of the nonhuman animals, flora, and derivatives being traded in illicit ways. Indeed, other research emerging from the BIOSEC project[[328]](#footnote-328) such as Lappe-Osthege’s (forthcoming) work on illicit songbird trade in Europe, lends itself to being analysed from a grey market perspective. Arguably, analysing the geopolitical-ecologies of grey markets for wildlife, also carries with it particular policy implications. The existence of a grey market indicates the complex intertwining of legal and illegal markets for wildlife; and as such, existing policy interventions focusing solely on targetting black markets for wildlife may be misguided. Thus, developing the grey market framework could aid in producing more effective policy interventions in the future.

Finally, I have considered the opportunities for building empirically upon the research I conducted for this PhD thesis. Due to the research design of my project I did not intend or expect to be able to conduct research directly with sturgeon fishing communities in EU sturgeon range states. However, the implications of EU caviar trade regulations have been felt particularly forcefully by sturgeon fishing communities. As such, I would relish the opportunity to pursue sustained qualitative empirical research in sturgeon fishing communities in Romania and Bulgaria, to determine firsthand how geopolitical processes and decisions made in Brussels directly impact their livelihoods. Existing scholarly research focusing on the social responses of sturgeon fishermen towards conservation policy has been conducted in the Caspian sea region (Ermolin and Svolkinas, 2016), but to my knowledge similar in-depth qualitative research has not been carried out in the EU context. Moreover, at the time of writing this conclusion the COVID-19 pandemic is affecting humanity at a global scale. This is a significant geopolitical event, which has widespread implications at a range of scales. Indeed, the coronavirus has prompted extensive lay-offs in sturgeon range states, and NGOs have suggested that the dramatic increase in unemployment is likely to lead to an increase in sturgeon crimes as people seek alternative income sources[[329]](#footnote-329). At this stage it is impossible to predict how the coronavirus pandemic will affect sturgeon fishing communities either directly or indirectly; but the predictions from NGOs point to a possible route of future inquiry to determine how the socio-political impacts of COVID-19 interact with the omissions and ambiguities in caviar trade regulations to shape dynamics of illegal caviar trade in the European Union.

This thesis has shed necessary empirical insight upon the overlooked and unintended geopolitical-ecological implications of caviar trade regulations in the European Union. Following the EU caviar trade policies, this thesis has demonstrated that the regulatory frameworks have a number of inconsistencies, which have produced far-ranging geopolitical-ecological effects extending beyond dynamics of illegal caviar trade. These implications are inherently more-than-human, in that they have an impact upon the ecologies of sturgeon and caviar in the EU; and are also indeliby shaped by the behaviours and properties of sturgeon and caviar. Thus, in developing a theoretical framework for more-than-human geopolitical ecology, this thesis centres sturgeon and caviar as key actors in the geopolitical-ecologies of EU caviar trade regulation; and ultimately concludes that the regulatory gaps and grey areas have implications upon and for: illegal caviar trade and the caviar industry; hidden political ecologies; security and power; and EU geopolitics.

# Appendices

## Appendix A: Participant Information Sheet

**BIOSEC Participant Information Sheet**



***BIOSEC: Biodiversity and Security.***

**Work Package 2: Examining the impacts of regulations on the geopolitical-ecology of caviar trade in the European Union**

*You are being invited to take part in a research project. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Please take time to decide whether or not you wish to take part. Thank you for reading this.*

**Purpose of the BIOSEC Project**

The BIOSEC project critically examines whether the illegal wildlife trade is a global security threat. Levels of poaching and trafficking of some of the world’s most iconic species have increased. NGOs, national governments and international organisations have claimed that wildlife trafficking generates ‘threat finance’ – that is that it funds organized crime and terrorism. But the evidence for this is sparse – and we need to develop a much better understanding of the relationships between them.

The BIOSEC project is led by Professor Rosaleen Duffy and is based in the Politics Department, University of Sheffield, UK.

More information is on our webpage: <https://biosecproject.org> and on our twitter feed: @biosec\_erc

**Project Specifics: Following-the-Policy: Examining the regulation of the trade in caviar within the European Union**

The sturgeon/caviar project is a component of the overall BIOSEC project. Hannah Dickinson will carry out this specific research project, for the purposes of her doctoral research. The findings from this research will directly contribute to and be included in Hannah’s PhD thesis.

The project is informed by the main project aims discussed above. The EU has increasingly framed wildlife trafficking as on organized crime with security implications. The illicit trade in caviar has often been linked to organized crime, yet there are limited explorations made into how the EU is practically responding to this trade.

This research therefore seeks to investigate how the interlink between wildlife crime, organized crime and security is influencing the EU’s regulatory approach to the illegal trade in sturgeon and caviar.

**Why am I being contacted?**

You have important specialist knowledge related to the caviar trade (in the EU or beyond) and/or the regulation of wildlife crime more generally within the EU. We believe that your input into this research is critically important and will provide us with unique insights into how the EU is attempting to regulate the trade in caviar, and what wider impacts this has. Your involvement will contribute to the wider BIOSEC aims, in terms of providing relevant information about the possible intersections between biodiversity conservation and security. As such, the BIOSEC team hope that this research will ultimately provide policy relevant information and advice for key stakeholders in the conservation community.

**Do I have to take part?**

Participation is entirely voluntary. It is up to you to decide whether to take part or not.

If you do decide to take part you will be given this information sheet to keep (and be asked to sign a consent form) and you can still withdraw at any time. You do not have to give a reason.

**What does it mean for me if I decide to take part?**

Hannah Dickinson will contact you to arrange a convenient time for a semi-structured interview, consisting of open-ended questions about how your organization is involved in the regulation of the caviar trade.

If you are a not a representative of an organization directly involved in regulating the caviar trade, the interview will consist of open-ended questions related to your relevant expert knowledge, and/or your involvement/understanding of the (legal) caviar trade and EU policy/regulation.

Typically interviews will last 30 – 60 minutes and are conducted either at your place of work or another agreed location, or Skype if it is not possible to meet in person. Interviews will be recorded with your consent; if you prefer not to be recorded that is also fine, and the interviewer will take brief notes instead. After the interview you will be provided with a full transcript – you are welcome to add/modify this to ensure it accurately captures your views. Your comments will be anonymised – your name will be kept separate from the transcript and you will be anonymised in any written outputs (papers, policy briefs etc). The BIOSEC team will be the only individuals given access to the transcript of your interview.

**What are the risks of taking part?**

The BIOSEC team have worked carefully to avoid and minimise any potential risks for participants. The research aims to engage critically with the ways that conservation and security might be integrated; this may not be regarded positively by some organisations. This research is expressly *not* about uncovering evidence of illegal activity – instead it centres on understanding the role of EU policymakers and related bodies in regulating the caviar trade.

The team will endeavour to ensure that your comments are anonymised; all data will be stored securely on encrypted flashdrives and password protected computers. We will not utilise cloud-based storage for this research project.

**What are the benefits of taking part?**

As the conservation community develops new security-oriented approaches to the illegal wildlife trade, policy-makers urgently need more information in order to design more effective and socially just responses. The BIOSEC project team aim to develop new approaches to assist and support user groups in practical actions. We hope that this research will inform and shape effective conservation strategies.

**What if I wish to make a complaint?**

We welcome feedback, both positive and negative, in order to improve our research practice. If you wish to make a complaint then please contact the Principal Investigator on the BIOSEC Project, Professor Rosaleen Duffy, [r.v.duffy@sheffield.ac.uk](mailto:r.v.duffy@sheffield.ac.uk) and Ruth Wilson, the project manager on [biosec@sheffield.ac.uk](mailto:biosec@sheffield.ac.uk). If you do not feel that your complaint has been dealt with properly then you can directly contact Lucy Martinez, the research manager in the Department of Politics, who will be able to take the complaint forward to the Head of Department and through the appropriate channels in the University. Her contact details are [l.martinez@sheffield.ac.uk](mailto:l.martinez@sheffield.ac.uk), tel +44 (0)114 2220665.

**Will my taking part be kept confidential?**

Yes. All the information we collect will be kept confidential. You will not be named in any reports or publications.

**What will happen to the results of the research?**

The results from this research will form the basis of my PhD thesis. The results will also be written up into a series of academic publications, policy reports, working papers and presentations for conferences/workshops. You will not be identified in any of these. Due to the nature of this kind of qualitative research, the information you provide will not be made available for secondary use by other researchers.

**Who is funding the research?**

This project is funded by a European Research Council Advanced Investigator Award, 2016-2020.

**Who has reviewed this project ethically?**

This project has obtained ethical approval from the Department of Politics at the University of Sheffield, which is the appropriate authority to carry out reviews for the University Research Ethics Committee. It has also undergone additional ethical review by the European Research Council.

**Contact for further information**

Please do not hesitate to contact the lead researcher directly, Hannah Dickinson [h.g.dickinson@sheffield.ac.uk](mailto:h.g.dickinson@sheffield.ac.uk).

Alternatively you can contact Rosaleen Duffy (Principal Investigator) [r.v.duffy@sheffield.ac.uk](mailto:r.v.duffy@sheffield.ac.uk), or, Ruth Wilson (Project Manager) on [biosec@sheffield.ac.uk](mailto:biosec@sheffield.ac.uk) 0114 222 1659 for further information

*Thank you for taking the time to read this.*

## Appendix B: Textual materials studied

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| --- | --- | --- |
| **Document** | **Type** | **Year of publication** |
| CITES Resolution Conf 12.7 (Revised CITES Cop17) | Policy/  Legislation | 2016 |
| EU Council Regulation 338/97 | Policy/  Legislation |  |
| EU Comission Regulation 865/2006 | Policy/  Legislation |  |
| European Commission communication - EU Action Plan Against Wildlife Trafficking | Policy/  Legislation | 2016 |
| Romanian Ministerial Order 384/2018 | Policy/  Legislation | 2018 |
| European Commission EUMOFA report - The caviar market: production, trade and consumption in and outside the EU | EU  Commission report | 2018 |
| New Rules to combat illegal caviar trade - European Commission | Press Release | 2006 |
| Illegal caviar trade in Bulgaria and Romania – WWF | NGO Report | 2013 |
| Understanding the Global Caviar Market - TRAFFIC | NGO Report | 2018 |
| Corruption and Wildlife Crime: A focus on the caviar trade - TRAFFIC | NGO Report | 2019 |
| Trade in Sturgeon caviar in Bulgaria and Romania - TRAFFIC | NGO Report | 2011 |
| Caviar Report to the European Commission: Briefing on the caviar trade and range state implementation of Resolution Conf 12.7 (rev cop14) | NGO Report | 2008 |
| Caviar Report to the European Commission: Analysis of EC trade in caviar by species and tracking on caviar permits within UNEP WCMC Database | NGO Report | 2008 |
| UNODC World Wildlife Crime Report - Caviar case study | NGO Report | 2016 |
| WWF - Sturgeon Strategy | Action Plan | 2017 |
| Danube Sturgeon Task Force - Sturgeon 2020: A programme for the protection and rehabilitation of Danube sturgeon | Action Plan | 2013 |
| Council of Europe - Pan-European Action Plan for Sturgeons (prepared by WWF and WSCS) | Action Plan | 2018 |
| IUCN Sturgeon stocks and caviar trade workshop 1995 | Meeting proceedings | 1997 |
| Proceedings of the International sturgeon enforcement workshop to combat illegal trade in caviar - TRAFFIC report for European commission | Meeting proceedings | 2006 |
| Overview of important international seizures of CITES Listed specimens in the EU Jan - Dec 2012 | Briefing report | 2013 |
| Overview of important seizures in the EU Jan - Dec 2013 | Briefing report | 2014 |
| Overview of important international seizures in the EU Jan - Dec 2014 | Briefing report | 2015 |
| Overview of important international seizures in the EU Jan - Dec 2015 | Briefing report | 2016 |
| Overview of important international seizures in the EU Jan - Dec 2016 | Briefing report | 2017 |
| Overview of seizures of CITES listed wildlife in the EU Jan - Dec 2017 | Briefing report | 2019 |

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1. This time period of 25 years has been selected, as the international trade in sturgeon and caviar first came under global regulatory frameworks in 1998, when sturgeon were listed on the Convention in trade of endangered species (CITES Appendices). My research engages with discussions taking place since 1995 in the run up to the listing of sturgeon on CITES, and continues to the present day (June 2020). [↑](#footnote-ref-1)
2. EU Action Plan Against Wildlife Trafficking: <https://ec.europa.eu/environment/cites/pdf/WAP_EN_WEB.PDF> [last accessed: 26.05.20] [↑](#footnote-ref-2)
3. The five other sturgeon species found in the Danube River Basin are: Sterlet (A.Ruthenus), Stellate (A.Stellatus), Beluga (Huso Huso), Russian (A.Gueldestaedtii), Ship (A. Nudiventris) <https://www.icpdr.org/main/activities-projects/sturgeons-danube-basin> [last accessed: 17.02.20]. The 2018 Pan European Action Plan covers 8 sturgeon species, including those mentioned above and Adriatic (A. Naccarii) and Atlantic/Baltic (A. Oxyrinchus) species which are not found in the Danube River Basin. <https://rm.coe.int/pan-european-action-plan-for-sturgeons/16808e84f3> [last accessed: 17.02.20] [↑](#footnote-ref-3)
4. Established in 1964, **The International Union for Conservation of Nature’s Red List of Threatened Species** has evolved to become the world’s most comprehensive information source on the global conservation status of animal, fungi and plant species. The IUCN Red List is a critical indicator of the health of the world’s biodiversity It provides information about range, population size, habitat and ecology, use and/or trade, threats, and conservation actions that will help inform necessary conservation decisions. <https://www.iucnredlist.org> [↑](#footnote-ref-4)
5. The value of caviar is cited by TRAFFIC (2009) as bringing retail prices in Western Europe of up to EUR 600 per 100g of the product. It is one of the most expensive wildlife products in the world.

   <https://www.traffic.org/site/assets/files/9467/black-gold-the-caviar-trade-in-western-europe.pdf> [last accessed: 25.05.20] [↑](#footnote-ref-5)
6. For the purposes of the literature review on geopolitical animals I am taking a broad view of ‘critical geopolitics’ and including some overlapping literature from International Relations and Critical Security studies that may not explicitly identify as ‘critical geopolitics’, but speaks to the themes of this discipline. [↑](#footnote-ref-6)
7. The universal caviar labelling system is a system designed to increase the traceability of caviar on the international market. The system is a legal requirement for parties to the Convention in Trade of Endangered Species (CITES). I explain the mechanisms of the labelling system in chapter four of this thesis. [↑](#footnote-ref-7)
8. I carried out a 1-week pilot study prior to the main body of fieldwork in Vienna, Austria in September 2017. Following this pilot study I began to investigate conducting the ‘follow the thing: caviar’ methodology, but ultimately decided to shift to follow the policy. [↑](#footnote-ref-8)
9. I conducted fieldwork in Austria for 1 week in September 2017. I conducted fieldwork in Belgium for 4 weeks total, split over 2 trips. The first trip was 3.5 weeks in February 2018, and the second was a 4 day return trip in April 2018. I conducted 3 weeks of fieldwork in the Netherlands in March 2018. I conducted 2 weeks of fieldwork in Romania, split over 2 trips. The first week was spent in Bucharest in May 2018, and the second week was spent mainly in the Danube Delta in July 2018, with a short return to Bucharest. I conducted 3 days of fieldwork in Warsaw, Poland. Finally I spent approximately 2 weeks conducting fieldwork in the UK, although this fieldwork was conducted on an ad-hoc basis between other stints of overseas fieldwork, and so cannot be confined to a specific time frame. [↑](#footnote-ref-9)
10. Although not EU member states, Switzerland, Ukraine and USA were of significant note to the research. Geneva, Switzerland is the location of the CITES Secretariat, where high-level international policy negotiations relating to international trade in endangered species are formalized. In the case of Ukraine, illegal caviar trade in this country has implications for the functioning and efficacy of EU caviar trade policy, given Ukraine’s position at the border to the EU. In the case of the USA, I interviewed two academics that had been at the forefront of a campaign in the US to ban imports of Beluga caviar into the country. This campaign resulted in changes to US laws, but a similar campaign struggled to materialize in the European Union. These interviews were important for contextualizing the differences between the situation in the USA and the EU. [↑](#footnote-ref-10)
11. Of the 40 interviews, 7 of the interviews were group interviews involving up to 5 interviewees. [↑](#footnote-ref-11)
12. The International Sturgeon Symposium is organized by the World Sturgeon Conservation Society (WSCS) and takes place every 4 years. The symposia have become the key global platform to discuss issues related to sturgeon conservation and by extension caviar trade. Attendees present findings from research and discuss future strategies for research and management of sturgeon populations. At ISS8 in 2017 there was a ‘caviar trade forum’ dedicated to discussing caviar trade and policy issues. There were over 130 presentations and 90 posters presented at ISS8, with 310 participants from 30 countries attending the meeting. [↑](#footnote-ref-12)
13. <https://www.seafoodexpo.com/global/expo-highlights/> [last accessed: 28.05.20] [↑](#footnote-ref-13)
14. CITES is the Convention in Trade of Endangered Species, a UN multilateral treaty designed to protect endangered plants and animals, by regulating international trade. Appendix I, II, and III, to the convention are lists of species afforded different levels or types of protection from overexploitation. All sturgeon are listed on Appendix I or Appendix II of CITES. Appendix I lists the most endangered among CITES listed plants and animals. International commercial trade in these species is prohibited. Appendix II lists species that may become threatened by extinction if international trade is not closely controlled. International trade in these species is granted with the issuance of an export permit. More information on the CITES Appendices: <https://www.cites.org/eng/app/index.php> [last accessed: 28.05.20] [↑](#footnote-ref-14)
15. Interview with Sigrid, WP2.40, NGO Project Coordinator, Austria, May 2019 [↑](#footnote-ref-15)
16. A multi-agency report, co-authored by UN -Environment, Eurac resarch, and WWF: <https://wedocs.unep.org/bitstream/handle/20.500.11822/22225/Combating_WildlifeCrime_Danube.pdf?sequence> [last accessed: 27.09.19] [↑](#footnote-ref-16)
17. The last remaining viable wild sturgeon populations in the EU are found in the Danube-Carpathian region of Europe. [↑](#footnote-ref-17)
18. The International Union for the Conservation of Nature (IUCN) is a membership union of government and civil society organisations, working to conserve nature. The IUCN compiles the IUCN Red-List of threatened species which is the world’s most comprehensive inventory of the conservation status of over 100,000 plant and animal species. [↑](#footnote-ref-18)
19. The Atlantic Sturgeon (A. Sturio) is also known as the European Sea Sturgeon and the Common Sturgeon [↑](#footnote-ref-19)
20. CITES Resolution 12.7 was produced via the standard deliberative format, whereby at each CITES CoP meeting the Parties to CITES ‘consider problems of implementation of the convention and its effectiveness’. The results of these deliberations are recorded either as Resolutions or Decisions of the Conference of the Parties. In this case, the discussions around sturgeon and caviar trade were recorded as a Resolution. The Resolutions are typically intended to provide long-standing guidance over periods of many years, and include the guidance provided by the Conference of the Parties on how to interpret the provisions of the Convention. Resolution Conf. 12.7 was formally produced at the 12th CoP meeting in Santiago, Chile in 2002 and has been revised periodically at the 13th, 14th, 16th and 17th subsequent CoP meetings, to reflect the changing realities of the caviar industry. However, Resolution Conf. 12.7 contains rules for controlling the trade in sturgeon and caviar which were initiated prior to 2002. Namely it incorporated into one regulatory framework aspects of Resolution Conf. 10.12 Conservation of Sturgeons, adopted at the 10th CoP meeting in Harare, Zimbabwe, in 1997, and Resolution Conf. 11.13 Universal Labelling System for the Identification of Caviar adopted at the 11th CoP in Gigiri, Kenya, 2000. See: <https://www.cites.org/eng/res/index.php> [last accessed: 28.05.20] [↑](#footnote-ref-20)
21. CITES list the following 5 sturgeon habitats as ‘shared stocks’ in CITES resolution 12.7. These are seas and/or rivers that comprise the geographic range of some species of sturgeon. In the case of rivers this range extends into multiple nation states, and in the case of seas there are multiple range states. Caspian Sea (Azerbaijan, Iran, Kazakhstan, Russian Federation, Turkmenistan); North West Black Sea and Lower Danube River (Bulgaria, Romania, Serbia, Ukraine); St John River/Bay of Fundy (Canada, USA); Amur/Heilongjiang River (China, Russian Federation); Azov Sea (Russian Federation, Ukraine) [↑](#footnote-ref-21)
22. Notably, the import of this caviar from Kazakhstan was not reported by EU Member States [↑](#footnote-ref-22)
23. CITES Resolution Conf 14.7 (Rev. Cop 15) Management of nationally established export quotas <https://www.cites.org/sites/default/files/document/E-Res-14-07-R15.pdf> [last accessed: 05.02.20] [↑](#footnote-ref-23)
24. There was a one-off export quota reported in 2017 from Uzbekistan, for the export of 20 live specimen of wild-caught Amu Darya Sturgeon (Pseudoscaphirhynchus kaufmanni) (Harris & Shiraishi, 2018:10) [↑](#footnote-ref-24)
25. Interview with Michael, WP.2.02, Ex-enforcement officer, UK, December 2017. A number of US prosecutions against caviar laundering into ‘legal’ enterprises are listed on the United States Department of Justice website, see here: <https://www.justice.gov/enrd/caviar-prosecutions> [last accessed: 28.05.20] [↑](#footnote-ref-25)
26. Interview with Yvar, WP2.16, Researcher, Netherlands, March, 2018.

    See also WWF Danube-Carpathian Factsheet (2014) ‘Sturgeons and Caviar: the basics of legal caviar trade’, which states that “the aquaculture industry may also pose risks to sturgeon. In recent years concerns have been expressed that aquaculture operations may be involved in ‘laundering’ wild sturgeons and caviar”

    <https://d2ouvy59p0dg6k.cloudfront.net/downloads/caviar_brochure_eng.pdf> [last accessed: 28.05.20]

    See also a 2011 report from Euractiv that highlights the suspected role of Bulgarian aquaculture businesses in laundering wild caviar through their enterprises. <https://www.euractiv.com/section/justice-home-affairs/news/bulgaria-romania-targeted-for-illegal-caviar-trade/> [last accessed: 28.05.20]

    See also the investigative journalism article, ‘Caviar, Crime and Corruption’, which refers to a study that noted 70% of Romanian aquaculture caviar destined for export, was from wild sturgeon. <https://oxpeckers.org/2019/10/caviar-crime-and-corruption/> [last accessed: 28.05.20] [↑](#footnote-ref-26)
27. The 2016 UNODC World Wildlife Crime report foregrounded this issue stating that: “an additional concern is the potential for farming operations to launder wild caught sturgeon, used either as breeding stocks or directly as a source of roe” (2016: 91) Available at: [http://www.unodc.org/unodc/en/data- and-analysis/wildlife.html](http://www.unodc.org/unodc/en/data-%20and-analysis/wildlife.html) [last accessed: 28.05.20] [↑](#footnote-ref-27)
28. For example in 2017 there was a one-off export quota for Uzbekistan, to export 20 live specimen of wild-caught Amu Darya Sturgeon (Pseudoscaphirhynchus kaufmanni). However all other forms of international trade in wild-caught sturgeon were prohibited at the time. (Harris & Shiraishi, 2018:10) [↑](#footnote-ref-28)
29. There is currently a sturgeon fishing ban in place in the Caspian Sea, agreed by Caspian Sea range states until the end of 2020. Sturgeon fishing in the Black Sea is also prohibited. Sturgeon fishing in the Lower Danube is prohibited by Bulgaria and Romania until 2021. [↑](#footnote-ref-29)
30. For more details on the Caviar labeling requirements, see the following TRAFFIC factsheet:

    <https://ec.europa.eu/environment/cites/pdf/caviar_labelling.pdf> [last accessed: 06.06.20] [↑](#footnote-ref-30)
31. For example see Harris, L. and Shiraishi, H. (2018) *Understanding the Global Caviar Market: Results of a rapid assessment on trade in sturgeon caviar*. TRAFFIC and WWF joint report. Cambridge, UK: TRAFFIC [↑](#footnote-ref-31)
32. Interview with Sigrid, WP2.40, NGO Project Manager, Austria, May 2019 [↑](#footnote-ref-32)
33. Interview with Ethan, WP2.38, Sturgeon farmer and caviar producer, UK, September 2018 [↑](#footnote-ref-33)
34. Interview with Sigrid, WP2.40, NGO Project Manager, Austria, May 2019 [↑](#footnote-ref-34)
35. Interview with Qerene, WP2.09, Biologist and caviar producer, Belgium, February 2018 [↑](#footnote-ref-35)
36. Interview with Qerene, WP2.09, Biologist and caviar producer, Belgium, February 2018.

    See also Van Uhm (2016) ‘The Illegal trade in Black Caviar’, which mentions the detection of mislabelled caviar in the EU, which has been repackaged. It is suggested that the caviar is smuggled from the Caspian Sea through Dagestan and Azerbaijan to Iran where it is repackaged with legal Iranian caviar and sent to destinations in Europe. (pp. 81) [↑](#footnote-ref-36)
37. The six countries of the rapid assessment included key range states and key importing countries and were: China, France, Germany, Japan, Russia, USA [↑](#footnote-ref-37)
38. Interview with Oliver, WP2.03, Intelligence Officer, UK, December 2017 [↑](#footnote-ref-38)
39. Council Regulation (EC) No 338/97 establishes an EU **Enforcement Group** consisting of representatives of each of the Member State's authorities that have responsibility for monitoring compliance with the Regulations, such as Customs, Police and Wildlife Inspectorates. The Group is chaired by the European Commission.The task of the group is to monitor enforcement policy and practice in the EU Member States and make recommendations to improve the enforcement of wildlife trade legislation. For more information see: https://ec.europa.eu/environment/cites/eg\_en.htm [↑](#footnote-ref-39)
40. Romania introduced a sturgeon fishing ban in 2006. It took until 2011 for Bulgaria to align its national legislation with Romania and to implement a ban on the commercial fishing of sturgeon. Now both EU states are honouring the commercial fishing ban of sturgeon in the Lower Danube until at least 2021 when the ban will be reassessed and probably re-extended. There is currently a complete fishing ban in the Danube River and Black Sea. Other range states are Ukraine and Serbia. Ukraine has had a sturgeon fishing ban in place since 2000. Serbia had stopped short of a blanket ban on fishing of sturgeon, allowing sterlet fishing during specific months of the year. But in January 2019 a complete ban on sterlet fishing in Serbia was enacted. [↑](#footnote-ref-40)
41. Interview with Sigrid, WP2.40, NGO Project Manager, Austria, May 2019. [↑](#footnote-ref-41)
42. Interview with Oliya, WP2.04, Caviar Producer, Belgium, February 2018.

    See also a 2004 article from the BBC: ‘Caviar producers cut export quota’. The article explains that Caspian Sea range states agreed to cut their caviar export quotas, and in 2004 halved their agreed export quotas on beluga caviar. The BBC reported that this move was “almost certain to drive up prices of the luxury roe”. This report coincides with the massive price increases in caviar documented in figure 4.1 between 2003 and 2006. <http://news.bbc.co.uk/1/hi/business/3726428.stm> [last accessed: 29.05.20]

    Oliya’s assertion that export quotas drove price spikes in caviar and led to the black market becoming more heavily involved in trading the product, echoes the opinion of many caviar producers and points to an on-going disagreement between the caviar industry and conservationists regarding the implementation of zero export quotas. Armen Petrossian head of the International Caviar Importers Association (ICIA), and a major US-based caviar importer maintains that zero export quotas are misguided: “It was a mistake to have no quotas because it led to an increase in the black market”. Whereas Ellen Pikitch, executive director for Ocean Conservation Science at Stony Brook University, USA (quoted in the same article) maintains that: “the quotas should all have been zero for all of these species”. Both quoted in the following 2010 article: ‘Beluga Caviar Exports to Resume Following Spat over Quotas: <http://www.ictsd.org/bridges-news/biores/news/beluga-caviar-exports-to-resume-following-spat-over-quotas> [last accessed: 28.05.20] [↑](#footnote-ref-42)
43. Interview with Ulmer, WP2.06, DG Environment, European Commission, February 2018

    In line with Ulmer’s statement, the 2016 UNODC World Wildlife Crime report also notes that “there have been very few seizures of caviar made in Europe in recent years”, and suggests that a possible reason for the declining seizures is that “the international illicit market was subsequently displaced by the growth of farmed sturgeon” (pp. 90) <https://www.unodc.org/documents/data-and-analysis/wildlife/World_Wildlife_Crime_Report_2016_final.pdf> [last accessed: 28.05.20] [↑](#footnote-ref-43)
44. Each Party to the CITES Convention must designate one or more Management Authorities in charge of administering that licensing system and one or more Scientific Authorities to advise them on the effects of trade on the status of the species. For example, for details on the designated UK CITES Management Authorities, see:

    <https://cites.org/eng/cms/index.php/component/cp/country/GB> [↑](#footnote-ref-44)
45. Interview with Sigrid, WP2.40, NGO Project Manager, Austria, May 2019

    Note: I contacted the CITES Management Authority in Germany to organise an interview but received no response. [↑](#footnote-ref-45)
46. Interview with Tom, WP2.33a and Joseph, WP2.33b, Caviar Testing Laboratory, UK, July 2018 [↑](#footnote-ref-46)
47. Interview with Oliver, WP2.03, Intelligence Officer, UK, December 2017 [↑](#footnote-ref-47)
48. Interview with Vince, WP2.08, CITES Officer, UK, February 2018 [↑](#footnote-ref-48)
49. In line with this, the 2016 UNODC world wildlife crime report, makes the conclusion that based upon declining seizures of caviar, “the economic value of this criminal market would be relatively small compared to other illicit markets” (pp.92) thereby suggesting that the extent of criminality associated with caviar trade is greatly reduced. <https://www.unodc.org/documents/data-and-analysis/wildlife/World_Wildlife_Crime_Report_2016_final.pdf> [last accessed: 28.05.20] [↑](#footnote-ref-49)
50. Interview with Michael, WP2.02, Ex-enforcement officer, UK, December 2017 [↑](#footnote-ref-50)
51. See the UNODC (2016) World Wildlife Crime report which makes similar conclusions: “reduced trafficking can also be attributed to dwindling stocks” (pp.91)

    <https://www.unodc.org/documents/data-and-analysis/wildlife/World_Wildlife_Crime_Report_2016_final.pdf> [last accessed: 28.05.20] [↑](#footnote-ref-51)
52. Interview with Michael, WP2.02, Ex-enforcement officer, UK, December 2017 [↑](#footnote-ref-52)
53. Interview with Oliver, WP2.03, Intelligence Officer, UK, December 2017 [↑](#footnote-ref-53)
54. Interview with Ulmer, WP2.06, DG Environment, European Commission, February 2018 [↑](#footnote-ref-54)
55. Interview with Ulmer, WP2.06, DG Environment, European Commission, February 2018 [↑](#footnote-ref-55)
56. Interview with Ulmer, WP2.06, DG Environment, European Commission, February 2018 [↑](#footnote-ref-56)
57. Interview with Oliver, WP2.03, Intelligence Officer, UK, December 2017

    See also the UNODC (2016) World Wildlife Crime Report, which acknowledges that “it is possible that international caviar traffickers have responded to interdiction with increasingly sophisticated smuggling techniques, and that these methods have been successful in evading controls to the present day”, but concludes that “no evidence for this has been found” (pp.90) <https://www.unodc.org/documents/data-and-analysis/wildlife/World_Wildlife_Crime_Report_2016_final.pdf> [last accessed: 28.05.20] [↑](#footnote-ref-57)
58. Interview with Michael, WP2.02, Ex-Enforcement Officer, UK, December 2017 [↑](#footnote-ref-58)
59. Interview with Yvar, WP2.16, Researcher, Netherlands, March 2018 [↑](#footnote-ref-59)
60. Representative of WWF International, Speaking at ISS8, Vienna, September 2017 [↑](#footnote-ref-60)
61. Representative of WWF International, Speaking at ISS8, Vienna, September 2017 [↑](#footnote-ref-61)
62. Interview with Sigrid, WP2.40, NGO Project Manager, Austria, May 2019 [↑](#footnote-ref-62)
63. Interview with Sigrid, WP2.40, NGO Project Manager, Austria, May 2019 [↑](#footnote-ref-63)
64. Interview with Yvar, WP2.16, Researcher Netherlands, March 2018 [↑](#footnote-ref-64)
65. Interview with Yvar, WP2.16, Researcher, Netherlands, March 2018 [↑](#footnote-ref-65)
66. The data for caviar seizures in the European Union is held on the EU-TWIX database (https://www.eu-twix.org) The database holds over 54,000 seizure records from EU Member States since 2000. EU Member States report seizures to EU-TWIX on a voluntary basis. EU-TWIX is a joint initiative of the Belgian Federal Police, TRAFFIC Europe and the Belgian CITES Management Authority and Customs. I was not granted authorisation to access the data on caviar seizures held in the EU-TWIX database, and my specific questions on caviar trade data were not answered during correspondence with a representative of EU-TWIX. To this extent, all seizure data that I analyse was found in secondary literature published online. [↑](#footnote-ref-66)
67. ‘Overview of important seizures in the EU, January – December 2016’ <https://ec.europa.eu/environment/cites/pdf/reports/2016_overview_significant_seizures.pdf> [last accessed: 23.08.19] [↑](#footnote-ref-67)
68. Interview with Yvar, WP2.16, Researcher, Netherlands, March 2018 [↑](#footnote-ref-68)
69. ‘Overview of seizures of CITES listed wildlife in the EU January – December 2017’ <https://ec.europa.eu/environment/cites/pdf/reports/Overview%20of%20seizures%20in%20the%20EU%202017_FINAL%20(March%202019).pdf> [last accessed: 30.09.19] [↑](#footnote-ref-69)
70. ‘Overview of seizures of CITES listed wildlife in the EU January – December 2017’ <https://ec.europa.eu/environment/cites/pdf/reports/Overview%20of%20seizures%20in%20the%20EU%202017_FINAL%20(March%202019).pdf> [last accessed: 18.09.19] [↑](#footnote-ref-70)
71. The EU-TWIX database was developed to facilitate information exchange on illegal wildlife trade in Europe. Enforcement officers input information regarding seizures into the database. <https://www.eu-twix.org/> [↑](#footnote-ref-71)
72. As I was not given access to the EU-TWIX database I am unable to verify these figures. [↑](#footnote-ref-72)
73. ‘Overview of important seizures in the EU January – December 2016’

    <https://ec.europa.eu/environment/cites/pdf/reports/2016_overview_significant_seizures.pdf> [last accessed: 28.05.20] [↑](#footnote-ref-73)
74. Interview with Vince, WP2.08, CITES Officer, UK February 2018 [↑](#footnote-ref-74)
75. Interview with Irini, WP2.26, NGO National Project Coordinator, Romania, May 2018.

    See also conclusions made in the UNODC (2016) World Wildlife Crime report, that a “lack of international seizures suggest it is likely destined for domestic markets” (pp.92). The report also points to an academic paper that has “indicated irregularities in the Danube basin which could be feeding markets within the EU” (pp.91) <https://www.unodc.org/documents/data-and-analysis/wildlife/World_Wildlife_Crime_Report_2016_final.pdf> [last accessed: 28.05.20]

    See also: A. Ludwig, D. Lieckfeldt and J. Jahrl, (2015) “Mislabeled and counterfeit sturgeon caviar from Bulgaria and Romania”, Journal of Applied Ichthyology, 31 (4):587-591 [↑](#footnote-ref-75)
76. See also a recent (2020) journalistic investigation by Balkan Insight, which reports that the Danube Delta Police confiscated 640kg of poached sturgeon in the last five years; and that the Romanian Border police reported confiscating half a ton of poached sturgeon, and half a ton of poached caviar. ‘Decimated Danube: Sturgeon revival efforts neglect roots of poaching’: <https://balkaninsight.com/2020/05/20/decimated-danube-sturgeon-revival-efforts-neglect-roots-of-poaching/> [last accessed: 28.05.20] [↑](#footnote-ref-76)
77. Interview with Yvar, WP2.16, Researcher, Netherlands, March 2018

    In line with Yvar’s statement, the UNODC (2016) World Wildlife Crime report acknowledges that “it is possible that unknown changes in the illicit market have transpired, making it impossible to extrapolate trends from the old data” (pp. 92) <https://www.unodc.org/documents/data-and-analysis/wildlife/World_Wildlife_Crime_Report_2016_final.pdf> [last accessed: 28.05.20] [↑](#footnote-ref-77)
78. Interview with Oliya, WP2.04, Caviar Producer, Belgium, February 2018 [↑](#footnote-ref-78)
79. Interview with Oliya, WP2.04, Caviar Producer, Belgium, February 2018 [↑](#footnote-ref-79)
80. See similar arguments made in ‘Decimated Danube: Sturgeon revival efforts neglect roots of poaching’: <https://balkaninsight.com/2020/05/20/decimated-danube-sturgeon-revival-efforts-neglect-roots-of-poaching/> [last accessed: 28.05.20] [↑](#footnote-ref-80)
81. Interview with Irini, WP2.26, NGO National Project Coordinator, Romania, May 2018 [↑](#footnote-ref-81)
82. Interview with Juliani, WP2.27, NGO Coordinator, Romania, May 2018

    As of 2020, little progress appears to have been made in compensating sturgeon fishing communities. See similar statements are made in the article: ‘Decimated Danube: Sturgeon revival efforts neglect roots of poaching’: <https://balkaninsight.com/2020/05/20/decimated-danube-sturgeon-revival-efforts-neglect-roots-of-poaching/> [last accessed: 28.05.20] [↑](#footnote-ref-82)
83. Interview with Juliani, WP2.27, NGO Coordinator, Romania, May 2018 [↑](#footnote-ref-83)
84. See for example the establishment of social enterprise projects in the region, such as Danube Delta Life:

    <https://www.danubedeltalife.social/en/> [last accessed: 30.05.20] [↑](#footnote-ref-84)
85. see for example the quotation of Romanian sturgeon fishermen Rares Ivanov: “they want us to turn to tourism? What should we feed tourists? Fish from the supermarket?” in ‘Decimated Danube: Sturgeon revival efforts neglect roots of poaching’: <https://balkaninsight.com/2020/05/20/decimated-danube-sturgeon-revival-efforts-neglect-roots-of-poaching/> [last accessed: 28.05.20] [↑](#footnote-ref-85)
86. Interview with Irini, WP2.26, NGO National Project Coordinator, Romania, May 2018 [↑](#footnote-ref-86)
87. Interview with Irini, WP2.26, NGO National Project Coordinator, Romania, May 2018

    See also quote of Romanian sociologist, Valentin Moldoveanu: “The biggest problem with the ban on sturgeon fishing…is that they haven’t received anything in return: no subsidies, no damages…That was a recipe for poaching to flourish.” Quoted in ‘Decimated Danube: Sturgeon revival efforts neglect roots of poaching’: <https://balkaninsight.com/2020/05/20/decimated-danube-sturgeon-revival-efforts-neglect-roots-of-poaching/> [last accessed: 28.05.20] [↑](#footnote-ref-87)
88. Interview with Danut, WP2.37, Sturgeon farmer and Caviar Producer, Romania, August 2018

    The price of wild caviar on the black market is unclear and according to a TRAFFIC (2013) study on illegal caviar trade in Romania and Bulgaria, there is a large variability in price. See: <https://d2ouvy59p0dg6k.cloudfront.net/downloads/illegal_caviar_trade_in_bulgaria_and_romania__1_.pdf> [last accessed: 30.05.20] A recently journalistic investigation reported the black market price of 1 kilo of caviar (the species is not disclosed) costing 1,000 euros in Romania. See ‘Decimated Danube: Sturgeon revival efforts neglect roots of poaching’: <https://balkaninsight.com/2020/05/20/decimated-danube-sturgeon-revival-efforts-neglect-roots-of-poaching/> [last accessed: 28.05.20] [↑](#footnote-ref-88)
89. See quote from Romanian fisherman Rares Ivanov: “If they gave us a break, none of the fishermen would look for ways to avoid the law” quoted in ‘Decimated Danube: Sturgeon revival efforts neglect roots of poaching’: <https://balkaninsight.com/2020/05/20/decimated-danube-sturgeon-revival-efforts-neglect-roots-of-poaching/> [last accessed: 28.05.20]

    See also ‘Caviar, crime, and corruption’ report which quotes a WWF representative explaining that “fishermen found themselves going from being heroes of the Delta to poachers...and led to that state where they totally and even brutally rejected this decision of a full sturgeon fishing ban”. <https://oxpeckers.org/2019/10/caviar-crime-and-corruption/> [last accessed: 30.05.20] [↑](#footnote-ref-89)
90. Interview with Rose, WP2.10, NGO Representative, Austria, February 2018

    See also the journalistic investigation ‘Decimated Danube: Sturgeon revival efforts neglect roots of poaching’, which confirms that poaching continues in the Danube Delta and that there is a continuing demand for wild caviar on the black market: <https://balkaninsight.com/2020/05/20/decimated-danube-sturgeon-revival-efforts-neglect-roots-of-poaching/> [last accessed: 28.05.20] [↑](#footnote-ref-90)
91. Interview with Irini, WP2.26, NGO National Project Coordinator, Romania May 2018

    see also the journalistic investigation ‘Decimated Danube: Sturgeon revival efforts neglect roots of poaching’, which describes how sturgeon fishermen feel watched and criminalised by the tight controls made by law enforcement agencies looking for illegal catch. <https://balkaninsight.com/2020/05/20/decimated-danube-sturgeon-revival-efforts-neglect-roots-of-poaching/> [last accessed: 28.05.20] [↑](#footnote-ref-91)
92. Interview with Irini, WP2.26, NGO National Project Coordinator, Romania May 2018 [↑](#footnote-ref-92)
93. Interview with Danut, WP2.37, Sturgeon farmer and Caviar Producer, Romania, August 2018 [↑](#footnote-ref-93)
94. Interview with Juliani, WP2.27, NGO Coordinator, Romania, May 2018

    See also recent journalistic investigation ‘Decimated Danube: Sturgeon revival efforts neglect roots of poaching’, which describes an internal Border Police investigation into a malfunctioned surveillance camera on the Black Sea. Suggestions are that the camera was tampered with by authorities, to enable sturgeon poaching during a storm on the Black Sea in March 2019. <https://balkaninsight.com/2020/05/20/decimated-danube-sturgeon-revival-efforts-neglect-roots-of-poaching/> [last accessed: 28.05.20] [↑](#footnote-ref-94)
95. Interview with Rose, WP2.10, NGO Representative, Austria, February 2018 [↑](#footnote-ref-95)
96. Interview with Danut, WP2.37, Sturgeon farmer and Caviar Producer, Romania, August 2018

    See similar conclusions made in a 2017 report on ‘Combating Wildlife and Forest Crime in the Danube-Carpathian Region’

    <https://wedocs.unep.org/bitstream/handle/20.500.11822/22225/Combating_WildlifeCrime_Danube.pdf?sequence=1&isAllowed=y> [last accessed: 30.05.20] and recent journalistic investigation ‘caviar, crime and corruption’ <https://oxpeckers.org/2019/10/caviar-crime-and-corruption/> [last accessed: 30.05.20] [↑](#footnote-ref-96)
97. Interview with Juliani, WP2.27, NGO Coordinator, Romania, May 2018 [↑](#footnote-ref-97)
98. Interview with Michael, WP2.02, Ex-Enforcement Officer, UK, December 2017 [↑](#footnote-ref-98)
99. It is imperative to note here that sturgeon population decline is commonly referenced, but there is a dearth of data to statistically demonstrate this. I was unable to locate any data sources that statistically account for sturgeon population decline in Europe. There does not appear to be any co-ordinated Pan European project to ascertain remaining sturgeon populations. There are localised projects for example in Romania, conducted by research institutes that are attempting to monitor population decline in the Danube Delta, amongst other things. As such, all references to sturgeon population decline made in this thesis are grounded in interview discussions with experts in the field.

    The 2016 UNODC world wildlife crime report also noted that a current population estimate for sturgeon is not available <https://www.unodc.org/documents/data-and-analysis/wildlife/World_Wildlife_Crime_Report_2016_final.pdf> [last accessed: 28.05.20]

    Some estimates suggest that just 1% of the sturgeon that once populated the Danube now roam in the wild. See ‘Decimated Danube: Sturgeon revival efforts neglect roots of poaching’ <https://balkaninsight.com/2020/05/20/decimated-danube-sturgeon-revival-efforts-neglect-roots-of-poaching/> [last accessed 28.05.20] [↑](#footnote-ref-99)
100. Sturgeon life cycles are long, and their maximum age can exceed over 100. As a result sturgeon require long-term recovery programmes that last several decades, and population management strategies that are adapted to their species biology and ecology. See Pan European Action Plan for Sturgeon (2018: 7) <https://rm.coe.int/pan-european-action-plan-for-sturgeons/16808e84f3> [last accessed: 30.05.20] [↑](#footnote-ref-100)
101. Interview with Rose, WP2.10, NGO Representative, Austria, February 2018

     See also UNDOC (2016) World Wildlife Crime report which states that “from a conservation perspective, every individual taken today poses a high threat to the species than in the past” (pp.90) <https://www.unodc.org/documents/data-and-analysis/wildlife/World_Wildlife_Crime_Report_2016_final.pdf> [last accessed: 28.05.20] [↑](#footnote-ref-101)
102. Interview with Irini, WP2.26, NGO National Project Coordinator, Romania, May 2018 [↑](#footnote-ref-102)
103. Interview with Michael, WP2.02, Ex-Enforcement Officer, UK, December 2017 [↑](#footnote-ref-103)
104. Interview with Michael, WP2.02, Ex-Enforcement Officer, UK, December 2017 [↑](#footnote-ref-104)
105. Interview with Sigrid, WP2.40, NGO Project Coordinator, Austria, May 2019 [↑](#footnote-ref-105)
106. A recent conference on sturgeon conservation held in Romania in 2019, was entitled: ‘Conservation of Danube Sturgeons - a challenge or burden?’ Galati, Romania, 28-30 October 2019 <http://www.sturgeon.ugal.ro/index.php/en/?fbclid=IwAR1RfsvP9WdaKDQAPma8ZgRO8PwAkEM0LzLriZcASiV8YytNSJ9PeywY2v0> [↑](#footnote-ref-106)
107. Interview with Wilhelm, WP2.13, CITES Secretariat, (Skype interview) February 2018 [↑](#footnote-ref-107)
108. Interview with Yvar, WP2.16, Researcher, Netherlands, March 2018 [↑](#footnote-ref-108)
109. Interview with Oliya, WP2.04, Co-founder caviar company, Belgium, February 2018 [↑](#footnote-ref-109)
110. Interview with Sigrid, WP2.40, NGO Project Manager, Austria, May 2018 [↑](#footnote-ref-110)
111. Interview with Qerene, WP2.09, Biologist and Caviar Producer, February 2018 [↑](#footnote-ref-111)
112. Interview with Oliya, WP2.04, Caviar Producer, Belgium, February 2018. In contrast famed caviar producer Armen Petrossian is quoted in the Financial Times (2019) as saying that “good farmed caviar is virtually indistinguishable from the wild” see ‘Why is Caviar so expensive?’ <https://www.ft.com/content/88463cae-2f22-11e9-8744-e7016697f225> [last accessed: 30.05.20] [↑](#footnote-ref-112)
113. Interview with Tom, WP2.33a, Operations Manager, Testing laboratory, UK, July 2018 [↑](#footnote-ref-113)
114. Interview with Tom, WP2.33a, Operations Manager, Testing laboratory, UK, July 2018 [↑](#footnote-ref-114)
115. Interview with Vince, WP2.08, CITES Officer, UK, February 2018 [↑](#footnote-ref-115)
116. Interview with Oliver, WP2.03, Intelligence Officer, UK, December 2017 [↑](#footnote-ref-116)
117. Interview with Trevor, WP2.05, Customs Investigation Officer, Belgium, February 2018 [↑](#footnote-ref-117)
118. Interview with Joseph, WP2.33b, CEO, Testing Laboratory, UK, July 2018 [↑](#footnote-ref-118)
119. See also 2013 report from TRAFFIC on illegal caviar trade in Romania and Bulgaria. This report identifies instances of mislabeling of caviar in these two countries, and calls for more widespread stable isotope testing of caviar.

     <https://www.traffic.org/site/assets/files/2593/illegal_caviar_trade_bulgaria_romania_report.pdf> [last accessed: 30.05.20] [↑](#footnote-ref-119)
120. Interview with Irini, NGO National Project Coordinator, Romania, May 2018 [↑](#footnote-ref-120)
121. Interview with Irini, NGO National Project Coordinator, Romania, May 2018

     See also, results regarding issues with caviar labeling in the joint WWF and TRAFFIC (2018) report ‘Understanding the Global caviar market’

     <https://c402277.ssl.cf1.rackcdn.com/publications/1166/files/original/global-caviar-market.pdf?1531850427> [Last accessed: 30.05.20] [↑](#footnote-ref-121)
122. Interview with Sigrid, WP2.40, Project Manager, NGO, Austria, May 2019 [↑](#footnote-ref-122)
123. Interview with Vince, WP2.08, CITES Officer, UK, February 2018 [↑](#footnote-ref-123)
124. Interview with Tom, WP2.33a, Operations Manager, Testing laboratory, UK, July 2018 [↑](#footnote-ref-124)
125. Interview with Yvar, WP2.16, Researcher, Netherlands, March 2018 [↑](#footnote-ref-125)
126. Interview with Tom, WP2.33a, Operations Manager, Testing Laboratory, UK, July 2018. Another illustrative example is trade in lions and lion bone. Lions are listed on Appendix II of CITES, so some forms of trade are legitimate with a CITES export permit. However, there are grey areas in the industry and suspected illegal practices. See following article: <https://www.nationalgeographic.co.uk/animals/2019/11/exclusive-inside-controversial-south-african-lion-farm>[last accessed: 30.05.20]   
     See also the following blog-post that describes some of the complexities of timber trade and illegal logging in the EU, where some forms of logging are criminalised, but others are not. This makes enforcement against illegal logging difficult, and illegal timber is able to enter legal EU markets without detection. <https://biosecproject.org/2020/05/19/blog-criminalisation-crisis-narratives-and-the-commission-the-fight-against-deforestation-in-europe/> [last accessed: 30.05.20] [↑](#footnote-ref-126)
127. Interview with Sigrid, WP2.40, NGO Project Coordinator, Austria, May 2019. The ‘Blackwashing’ or ‘reverse-laundering’ of farmed caviar being sold as ‘wild’ is also reported by Van Uhm & Siegel in their 2016 article: ‘The illegal trade in Black Caviar’ <https://link.springer.com/article/10.1007/s12117-016-9264-5> [last accessed: 30.05.20] [↑](#footnote-ref-127)
128. Interview with Yvar, WP2.16, Researcher, Netherlands, March 2018 [↑](#footnote-ref-128)
129. Interview with Tom and Joseph, WP2.33, Testing Laboratory, UK, July 2018 [↑](#footnote-ref-129)
130. Interview with Qerene, WP2.09, Biologist and Caviar Producer, Belgium, February 2018. See also a 2013 TRAFFIC report into illegal caviar trade in Bulgaria and Romania. This report details allegations in Romania that wild sturgeon legally caught for breeding purposes are not released but unlawfully retained in farms and even killed to sell caviar. <https://d2ouvy59p0dg6k.cloudfront.net/downloads/illegal_caviar_trade_in_bulgaria_and_romania__1_.pdf> [last accessed: 30.05.20] [↑](#footnote-ref-130)
131. Traditionally caviar is repackaged from 1.8kg or 1kg ‘Mother tins’ sent to repacking facilities straight from producers. These tins are also known colloquially as caviar’s ‘wine barrels’. [↑](#footnote-ref-131)
132. Interview with Irini, WP2.26, NGO National Project Coordinator, Romania May 2018 [↑](#footnote-ref-132)
133. A 2019 financial times report notes that “a lot of caviar is shipped and repackaged by middlemen and brokers in third or fourth countries and inevitably some is fraudulently described.”

     See:‘Why is caviar so expensive?’<https://www.ft.com/content/88463cae-2f22-11e9-8744-e7016697f225> [last accessed: 30.05.20] [↑](#footnote-ref-133)
134. Interview with Qerene, WP2.09, Biologist and Caviar Producer, Belgium, February 2018 [↑](#footnote-ref-134)
135. Interview with Qerene, WP2.09, Biologist and Caviar Producer, Belgium, February 2018 [↑](#footnote-ref-135)
136. Van Uhm & Siegel (2016) note that illegal Russian caviar has been smuggled into Europe after being repackaged with legal Iranian caviar. ‘The illegal trade in Black Caviar’ <https://link.springer.com/article/10.1007/s12117-016-9264-5> [last accessed: 30.05.20] [↑](#footnote-ref-136)
137. Interview with Yvar, WP2.16, Researcher, Netherlands, March 2018 [↑](#footnote-ref-137)
138. Interview with Yvar, WP2.16, Researcher, Netherlands, March 2018 [↑](#footnote-ref-138)
139. Interview with Wilhelm, WP2.13, CITES Secretariat, (Skype interview), February 2018 [↑](#footnote-ref-139)
140. Interview with Vince, WP2.08, CITES Officer, UK, February 2018 [↑](#footnote-ref-140)
141. Interview with Qerene, WP2.09, Biologist and Caviar producer, Belgium, February, 2018 [↑](#footnote-ref-141)
142. Interview with Yvar, WP2.16, Researcher, Netherlands, March 2018 [↑](#footnote-ref-142)
143. Informal conversation with Sigrid, WP2.40 at ISS8, September 2017 [↑](#footnote-ref-143)
144. Interview with Oliya, WP2.04, Caviar Producer, Belgium, February 2018

     The use of false company names on caviar tins is also mentioned in Van Uhm & Siegel’s (2016) article, where they reference the ‘bogus’ *Russian Ministry of Fishery*, listed as the producer on the tins. ‘The illegal trade in Black Caviar’ <https://link.springer.com/article/10.1007/s12117-016-9264-5> [last accessed: 30.05.20]

     See also the following 2019 report on Corruption and the caviar trade, for examples of fake company labels, or label forgery. <https://www.traffic.org/site/assets/files/11818/corruption-and-caviar-final.pdf> [last accessed: 30.05.20] [↑](#footnote-ref-144)
145. Interview with Oliya, WP2.04, Caviar Producer, Belgium, February 2018 [↑](#footnote-ref-145)
146. Interview with Yvar, WP2.16, Researcher, Netherlands, March 2018 [↑](#footnote-ref-146)
147. Interview with Oliya, WP2.04, Caviar producer, Belgium, February 2018. Similar mechanisms also described in a 2019 multi-agency report on Corruption and the caviar trade. <https://www.traffic.org/site/assets/files/11818/corruption-and-caviar-final.pdf> [last accessed: 30.05.20] [↑](#footnote-ref-147)
148. Interview with Yvar, WP2.16, Researcher, Netherlands, March 2019. See also a 2019 multi-agency report on Corruption and the caviar trade, which also describes the links between ‘upperworld’ actors in the caviar industry and criminal networks.

     <https://www.traffic.org/site/assets/files/11818/corruption-and-caviar-final.pdf> [last accessed: 30.05.20] [↑](#footnote-ref-148)
149. Interview with Sigrid, WP2.40, NGO project Coordinator, Austria, May 2019 [↑](#footnote-ref-149)
150. Interview with Yvar, WP2.16, Researcher, Netherlands March 2018 [↑](#footnote-ref-150)
151. ‘Obama, Putin and Black Caviar’ a clip of a news report from news network RT published online 7th July 2009 (formerly Russia Today. RT is funded by the Russian government) <https://www.youtube.com/watch?v=xYAJVgTjZAE> [last accessed: 09.02.20] [↑](#footnote-ref-151)
152. ‘US bans beluga caviar imports to protect sturgeon’ <https://www.ft.com/content/da6634ae-313d-11da-ac1b-00000e2511c8> [last accessed: 30.05.20]

     ‘America to introduce ban on caviar’ <https://www.independent.co.uk/environment/america-to-introduce-ban-on-caviar-5347743.html> [last accessed: 30.05.20] [↑](#footnote-ref-152)
153. Interview with Wilhelm, WP2.13, CITES Secretariat, February 2018 [↑](#footnote-ref-153)
154. Interview with Danut, WP2.37, Sturgeon farmer and caviar producer, Romania, July 2018 [↑](#footnote-ref-154)
155. Interview with Danut, WP2.37, Sturgeon farmer and caviar producer, Romania, July 2018 [↑](#footnote-ref-155)
156. Website for the Aller Aqua 9th International Sturgeon Conference <http://www.sturgeoninternational.com/o-konferencji> [last accessed: 31.05.20] [↑](#footnote-ref-156)
157. Representative of the World Sturgeon Conservation Society, speaking at the 9th Aller Aqua International sturgeon conference, Warsaw, November 2018. See also a presentation shared online from the Danube Sturgeon Task Force (DSTF), which states that “Aquaculture is an indispensable tool for ex-situ conservation measures” and that “ex-situ rearing is the only means to prevent extinction”. ‘Aquaculture and Conservation breeding – conflict or concurrence?’

     <https://circabc.europa.eu/sd/a/1769f2ab-d17e-4189-b804-30c1fbb31b7c/Day%201%20Pres%206%20Aquaculture_WS_CEFAS_Sturgeons_Reinartz.pdf> [last accessed: 31.05.20] [↑](#footnote-ref-157)
158. Sturgeon Geneticist speaking at the 9th Aller Aqua International sturgeon conference, Warsaw, November 2018. [↑](#footnote-ref-158)
159. ‘Can Aquaculture Save Sturgeon?’<https://www.seafoodsource.com/news/aquaculture/can-aquaculture-save-sturgeon> [last accessed: 31.03.20] [↑](#footnote-ref-159)
160. ‘Eight sturgeon aquaculture farms commit to protect sturgeons’. <https://wwf.panda.org/wwf_news/?250975/Eight-sturgeon-aquaculture-farms-commit-to-protect-sturgeons> [last accessed: 01.04.20] [↑](#footnote-ref-160)
161. Representative of the World Sturgeon Conservation Society, speaking at the 9th Aller Aqua International sturgeon conference, Warsaw, November 2018 [↑](#footnote-ref-161)
162. Interview with Danut, WP2.37, Sturgeon farmer and caviar producer, Romania, July 2018 [↑](#footnote-ref-162)
163. Email correspondence with Graham, WP2.39, Sturgeon farmer and caviar producer, September 2018 [↑](#footnote-ref-163)
164. Email correspondence with Graham, WP2.39, Sturgeon farmer and caviar producer, September 2018 [↑](#footnote-ref-164)
165. Interview with Oliya, WP2.04, Caviar Producer, Belgium, February 2018 [↑](#footnote-ref-165)
166. Interview with Oliya, WP2.04, Caviar Producer, Belgium, February 2018 [↑](#footnote-ref-166)
167. A 2013 TRAFFIC report on illegal caviar trade in Bulgaria and Romania states that illegal caviar prices considerably undercut those of farmed caviar. Poachers in Romania sell Sevruga caviar at 200 euros per kilo, whereas aquaculture operations must sell theirs at a cost of at least 500 euros per kilo due to the high investment in sturgeon farming.

     <https://d2ouvy59p0dg6k.cloudfront.net/downloads/illegal_caviar_trade_in_bulgaria_and_romania__1_.pdf> [last accessed: 30.05.20] [↑](#footnote-ref-167)
168. Email correspondence with Graham, WP2.39, Sturgeon farmer and caviar producer, September 2018 [↑](#footnote-ref-168)
169. Interview with Mollie, WP2.31, Caviar Importer and Wholesaler, UK, May 2018 [↑](#footnote-ref-169)
170. Interview with Melanie, WP2.01, NGO Representative, Ukraine, November 2017 [↑](#footnote-ref-170)
171. Representative of World Sturgeon Conservation Society, speaking at Aller the 9th Aller Aqua International sturgeon conference, Warsaw, November 2018 [↑](#footnote-ref-171)
172. Representative of WWF International, Speaking at ISS8, Vienna, September 2017 [↑](#footnote-ref-172)
173. Interview with Bram, WP2.18, Ex-enforcement officer, Netherlands, March 2018 [↑](#footnote-ref-173)
174. Interview with Michael, WP.2.02, Ex-enforcement officer, UK, December 2017 [↑](#footnote-ref-174)
175. Interview with Oliya, WP2.04, Caviar producer, Belgium, February 2018 [↑](#footnote-ref-175)
176. Interview with Ethan, WP2.38, Sturgeon farmer and caviar producer, UK September 2018 [↑](#footnote-ref-176)
177. See also a 2019 multi-agency report on Caviar and corruption, which explains the links between the legal ‘upperworld’ and organised criminal groups involved in illegal caviar trade.

     <https://www.traffic.org/site/assets/files/11818/corruption-and-caviar-final.pdf> [last accessed: 31.05.20] [↑](#footnote-ref-177)
178. Interview with Ethan, WP2.38, Sturgeon farmer and caviar producer, UK September 2018 [↑](#footnote-ref-178)
179. Interview with Ethan, WP2.38, Sturgeon farmer and caviar producer, UK September 2018 [↑](#footnote-ref-179)
180. Notes taken from personal research diary. Entry date 31st July 2018 [↑](#footnote-ref-180)
181. Name of the owner of the competitor caviar company. Removed for anonymity purposes. [↑](#footnote-ref-181)
182. Interview with Ethan, WP2.38, Sturgeon farmer and caviar producer, UK September 2018 [↑](#footnote-ref-182)
183. Interview with Ethan, WP2.38, Sturgeon farmer and caviar producer, UK September 2018 [↑](#footnote-ref-183)
184. Interview with Bram, WP2.18, Ex-enforcement officer, Netherlands, March 2018 [↑](#footnote-ref-184)
185. Interview with Oliya, WP2.04, Caviar producer, Belgium, February 2018 [↑](#footnote-ref-185)
186. Interview with Ethan, WP2.38, Sturgeon farmer and caviar producer, UK September 2018 [↑](#footnote-ref-186)
187. For example see the website of DariQus Caviar, a company which advocated no-kill methods and calls itself ‘the new gold standard’ in caviar production. The website emphasises their conservation ethos. <https://dariqus.com/> [last accessed: 05.05.20] [↑](#footnote-ref-187)
188. Interview with Ethan, WP2.38, Sturgeon farmer and caviar producer, UK September 2018 [↑](#footnote-ref-188)
189. Interview with Oliya, WP2.04, Caviar producer, Belgium, February 2018 [↑](#footnote-ref-189)
190. Interview with caviar producer, name removed for anonymity purposes [↑](#footnote-ref-190)
191. Interview with caviar producer, name removed for anonymity purposes [↑](#footnote-ref-191)
192. Brood-stock is the term for a group of mature individuals used in aquaculture for breeding purposes. Brood-stock can be ‘captive’ brood-stock, i.e. fish originally taken from the wild, or ‘domestic’ brood-stock, i.e. fish raised in captivity for breeding purposes. [↑](#footnote-ref-192)
193. Interview with Danut, WP2.37, Sturgeon farmer and caviar producer, Romania, July 2018 [↑](#footnote-ref-193)
194. A recent journalistic investigation notes in line with Danut, that sturgeon restocking initiatives previously happened annually in Romania, but have become fragmented due to the expense associated with such restocking. ‘Decimated Danube: sturgeon revival efforts neglect roots of poaching’ <https://balkaninsight.com/2020/05/20/decimated-danube-sturgeon-revival-efforts-neglect-roots-of-poaching/> [last accessed: 30.05.20] [↑](#footnote-ref-194)
195. Representative of the World Sturgeon Conservation Society, speaking at the 9th Aller Aqua International sturgeon conference, Warsaw, November 2018 [↑](#footnote-ref-195)
196. Interview with Ethan, WP2.38, Sturgeon farmer and caviar producer, UK September 2018 [↑](#footnote-ref-196)
197. Interview with Yvar, WP2.16, Researcher, March 2018. See also Van Uhm & Siegel (2016), which notes that poachers in the Caspian have Garmin GPS systems, and state-of-the-art Baida boats. ‘The illegal trade in Black Caviar’ <https://link.springer.com/article/10.1007/s12117-016-9264-5> [last accessed: 30.05.20] [↑](#footnote-ref-197)
198. Interview with Rose, WP2.10, NGO Representative, Austria, February 2018 [↑](#footnote-ref-198)
199. Interview with Joseph, WP2.33b, CEO Testing Laboratory, UK, July 2018 [↑](#footnote-ref-199)
200. Interview with Yvar, WP2.16, Researcher, Netherlands, March 2018 [↑](#footnote-ref-200)
201. Interview with Vince, WP2.08, CITES officer, UK, February 2018 [↑](#footnote-ref-201)
202. Interview with Rose, WP2.10, NGO Representative, Austria, February 2018 [↑](#footnote-ref-202)
203. The Directorate General for Environment, European Commission. DG-ENV is the European Commission department responsible for leading on wildlife trade policy in the EU, and are currently undertaking an evaluation of the EU Action Plan against Wildlife Trafficking (2016), which clearly situates wildlife crime as a security issue. See the action plan: <https://ec.europa.eu/environment/cites/pdf/WAP_EN_WEB.PDF> [last accessed: 01.06.20] [↑](#footnote-ref-203)
204. The Directorate General for International Cooperation and Development, European Commission. In 2019 DG-DEVCO published a ‘Study on the Interaction between security and wildlife conservation in Sub-Saharan Africa’:<https://op.europa.eu/en/publication-detail/-/publication/53ed0515-de76-11e9-9c4e-01aa75ed71a1/language-en/format-PDF/source-search> [last accessed: 01.06.20] [↑](#footnote-ref-204)
205. The Directorate General for Regional and Urban policy, European Commission. [↑](#footnote-ref-205)
206. The European External Action Service is the diplomatic service and combined foreign and defence ministry of the European Union. See a 2017 report entitled: ‘One year after – Overview of actions and initiatives taken by EU Member States and European Commission’, which details how the EEAS worked with DG DEVCO to “address the security dimensions of wildlife trafficking”. This included organising 2 workshops on conservation and security in the DRC-CAR Garamba-Chinko corridor.

     <https://ec.europa.eu/environment/cites/pdf/Achievements_WAP_overview.pdf> [last accessed: 01.06.20] [↑](#footnote-ref-206)
207. See the Council of Europe (2018) report: ‘The EU policy cycle to tackle organised and serious international crime’ <https://www.consilium.europa.eu/media/37340/20185274_qc0418775enn_pdf.pdf> [last accessed: 01.06.20] [↑](#footnote-ref-207)
208. Interview with Ulmer, WP2.06, DG ENV, European Commission, February 2018 [↑](#footnote-ref-208)
209. Interview with Rose, WP2.10, NGO representative, Austria, February 2018 [↑](#footnote-ref-209)
210. Interview with Ulmer, WP2.06, DG ENV, European Commission, February, 2018 [↑](#footnote-ref-210)
211. Interview with Yvar, WP2.16, Researcher, Netherlands, March 2018 [↑](#footnote-ref-211)
212. Interview with Ulmer, WP2.06, DG ENV, European Commission, February 2018 [↑](#footnote-ref-212)
213. Interview with Čelan WP2.19, Europol, Netherlands, March 2018 [↑](#footnote-ref-213)
214. Interview with Yvar, WP2.16, Researcher, March 2018. See also Van Uhm & Siegel (2016) ‘The illegal trade in Black Caviar’, which details how Russian entrepreneurs deliver wild caviar taken from the Caspian Sea, by refrigerated trucks to Hamburg and Dusseldorf; and how caviar is trafficked by road from Azerbaijan through Georgia and Turkey, into the EU. <https://link.springer.com/article/10.1007/s12117-016-9264-5> [last accessed: 30.05.20] [↑](#footnote-ref-214)
215. Interview with Ulmer, WP2.06, DG-ENV, European Commission, February 2018 [↑](#footnote-ref-215)
216. Interview with Rose, WP2.10, NGO representative, Austria, February 2018. See also the 2017 multi-agency report on ‘Combatting Wildlife and Forest Crime in the Danube-Carpathian Region’, which outlines issues of corruption in fuelling wildlife crime in the region.

     <https://wedocs.unep.org/bitstream/handle/20.500.11822/22225/Combating_WildlifeCrime_Danube.pdf?sequence=1&isAllowed=y> [last accessed: 30.05.20] [↑](#footnote-ref-216)
217. Interview with Michael, WP2.02, ex-enforcement officer, UK, December 2017 [↑](#footnote-ref-217)
218. For example see the 2019 DG-DEVCO ‘Study on the Interaction between security and wildlife conservation in Sub-Saharan Africa’:<https://op.europa.eu/en/publication-detail/-/publication/53ed0515-de76-11e9-9c4e-01aa75ed71a1/language-en/format-PDF/source-search> [last accessed: 01.06.20] [↑](#footnote-ref-218)
219. Interview with Michael, WP2.02 ex-enforcement officer, UK, December 2017 [↑](#footnote-ref-219)
220. Interview with Oliya, WP2.04, Caviar Producer, Belgium, February 2018 [↑](#footnote-ref-220)
221. Informal discussion with Sigrid, WP2.40 at the Aller-Aqua 9th International Sturgeon Conference, Warsaw, November 2018 [↑](#footnote-ref-221)
222. The LIFE programme is the EU’s funding instrument for the environment and climate action, created in 1992. To date more than 5,400 projects have been co-funded under the EU LIFE programme. <https://ec.europa.eu/easme/en/life> [↑](#footnote-ref-222)
223. The European Commission provided in excess of 1.1 million euro in funding to LIFE for Danube Sturgeons project:

     <http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=5818&docType=pdf> [accessed: 05.02.19] [↑](#footnote-ref-223)
224. Interview with Rose, WP2.10, NGO representative, Austria, February 2018 [↑](#footnote-ref-224)
225. Interview with Irini, WP2.26, NGO Representative, Romania, May 2018 [↑](#footnote-ref-225)
226. WWF-Network, Sturgeon Strategy: <https://danube-sturgeons.org/wp-content/uploads/2017/10/WWF-Global-Sturgeon-Strategy-2017.pdf> [last accessed: 20.02.20] [↑](#footnote-ref-226)
227. The DSTF is a volunteer coalition and network of scientists, NGOs, activists and others concerned about sturgeon conservation and illegal trade (the WWF offices who are parties to the EU-LIFE project are also listed as ‘supporting partners’ of DSTF). Notably, DSTF does not have legal NGO status. [↑](#footnote-ref-227)
228. The EU Strategy for the Danube Region (EUSDR) is a macro-regional strategy adopted by the European Commission in December 2010 and endorsed by the European Council in 2011. The Strategy was jointly developed by the Commission, together with the Danube Region countries and stakeholders, in order to address common challenges together. The Strategy seeks to create synergies and coordination between existing policies and initiatives taking place across the Danube Region. <https://danube-region.eu/about/> [↑](#footnote-ref-228)
229. DTSF - Sturgeon 2020: A strategy for the protection and rehabilitation of Danube sturgeons

     <https://danube-sturgeons.org/wp-content/uploads/2017/07/sturgeon2020-final.pdf> [last accessed: 06.02.19] [↑](#footnote-ref-229)
230. Interview with Danut, WP2.37, Sturgeon Farmer and caviar producer, Romania, July 2018. See also a 2019 multi-agency report entitled ‘Corruption and wildlife crime: A focus on caviar trade’, which states that caviar trafficking does not always occur in isolation, and in some cases has been linked to other forms of organised crime including weapons trafficking. <https://www.traffic.org/site/assets/files/11818/corruption-and-caviar-final.pdf> [last accessed: 30.05.20] [↑](#footnote-ref-230)
231. Interview with Danut, WP2.37, Sturgeon Farmer and caviar producer, Romania, July 2018 [↑](#footnote-ref-231)
232. Interview with Yvar, WP2.16, Researcher, Netherlands, March 2018 [↑](#footnote-ref-232)
233. More than 170 Romanian Law Enforcement Officials trained how to detect Illegal sturgeon trade:

     <http://www.wwfmmi.org/boat/?uNewsID=358253> [last accessed: 24.02.20] [↑](#footnote-ref-233)
234. Interview with Irini, WP2.26, NGO Representative, Romania, May 2018 [↑](#footnote-ref-234)
235. <https://wwf.panda.org/?314210/The-photo-shooting-season-on-illegal-sturgeon-fishing-is-open-in-Ukraine> [last accessed 07.02.19] [↑](#footnote-ref-235)
236. The Romanian initiative is a coastal surveillance system called SCOMAR – Integrated System for Observation, Surveillance and Control of the Traffic at the Black Sea. The system is manned by Romanian Border Police, and is not specifically designed to monitor sturgeon poaching, but to observe and control illegal immigration, smuggling and trafficking of contraband goods, and other crimes more generally. The system is made up of local ‘surveillance centres’ along the coast: units which are made up of radars, electronic and optical sensors, and radio sensors which record information of the surveilled area 24/7. https://www.politiadefrontiera.ro/en/main/pg-integrated-system-for-observation-surveillance-and-control-of-the-traffic-at-the-black-sea-scomar-161.html [↑](#footnote-ref-236)
237. <https://wwf.panda.org/?314210/The-photo-shooting-season-on-illegal-sturgeon-fishing-is-open-in-Ukraine> [last accessed 07.02.19] [↑](#footnote-ref-237)
238. Interview with Melanie, WP2.01, NGO Representative, Ukraine, November 2017 [↑](#footnote-ref-238)
239. Interview with Melanie, WP2.01, NGO Representative, Ukraine, November 2017 [↑](#footnote-ref-239)
240. The following WWF article from January 2020, positions illegal sturgeon trade as a direct threat to the well-being, businesses, national institutions and local economies of European citizens: ‘More than 170 Romanian Law enforcement officials trained how to detect illegal sturgeon trade’ <http://www.wwfmmi.org/boat/?uNewsID=358253> [last accessed 24.02.20] [↑](#footnote-ref-240)
241. Interview with Melanie, WP2.01, NGO Representative, Ukraine, November 2017 [↑](#footnote-ref-241)
242. Interview with Rose, WP2.10, NGO Representative, Austria, February 2018 [↑](#footnote-ref-242)
243. Other forms of heavy-handed enforcement directed at fishing communities in Romania and Bulgaria, has been met with resistance, hostility, and further alienated some fishermen from authorities. This is discussed in a number of recent journalistic investigations. See ‘Decimated Danube: Sturgeon revival efforts neglect roots of poaching’: <https://balkaninsight.com/2020/05/20/decimated-danube-sturgeon-revival-efforts-neglect-roots-of-poaching/> [last accessed: 28.05.20]; ‘Caviar, Crime and Corruption’ <https://oxpeckers.org/2019/10/caviar-crime-and-corruption/> [last accessed: 28.05.20]; and ‘Craving for Caviar is driving the Danube River’s sturgeon to extinction’ <https://www.latimes.com/world-nation/story/2019-08-21/craving-for-caviar-is-driving-the-danube-rivers-sturgeon-to-extinction> [last accessed: 01.06.20] [↑](#footnote-ref-243)
244. Interview with Irini, WP2.26, WWF-Romania, Bucharest, May 2018. The corruption of enforcement agencies in the Romanian Danube Delta is also outlined in the following article: ‘Caviar, Crime and Corruption’ <https://oxpeckers.org/2019/10/caviar-crime-and-corruption/> [last accessed: 28.05.20] [↑](#footnote-ref-244)
245. ‘Violence escalates as Romania cracks down on illegal timber trade.’

     <https://www.theguardian.com/world/2020/jan/08/violence-escalates-as-romania-cracks-down-on-illegal-timber-trade> [last accessed: 24.02.20] [↑](#footnote-ref-245)
246. Interview with Ulmer, WP2.06, DG Environment, European Commission February 2018 [↑](#footnote-ref-246)
247. Interview with Juliani, WP2.27, NGO Coordinator, Romania, May 2018 [↑](#footnote-ref-247)
248. Interview with Danut, WP2.37, Sturgeon farmer and caviar producer, Romania, July 2018 [↑](#footnote-ref-248)
249. Interview with Juliani, WP2.27, NGO Coordinator, Romania, May 2018 [↑](#footnote-ref-249)
250. Interview with Juliani, WP2.27, NGO Coordinator, Romania, May 2018 [↑](#footnote-ref-250)
251. Interview with Danut, WP2.37, Sturgeon farmer and caviar producer, Romania, July 2018 [↑](#footnote-ref-251)
252. Interview with Juliani, WP2.27, NGO Coordinator, Romania, May 2018 [↑](#footnote-ref-252)
253. [↑](#footnote-ref-253)
254. Interview with Yvar, WP2.16, Researcher, Netherlands, March 2018 [↑](#footnote-ref-254)
255. Representative of WWF International, Speaking at ISS8, Vienna, September 2017 [↑](#footnote-ref-255)
256. See for example, ICPDR (2013) ‘A home for living fossils – protecting the sturgeons habitat’: <https://www.icpdr.org/main/publications/home-living-fossils-protecting-sturgeons-habitats> [last accessed: 02.06.20] [↑](#footnote-ref-256)
257. Other important regulatory frameworks which affect sturgeon include: The EU Habitats Directive - <https://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm>; The EU Water Framework Directive - <https://ec.europa.eu/environment/water/water-framework/index_en.html>; the UN Convention on the Conservation of Migratory species of Wild Animals - <https://www.cms.int>; The Council of Europe Bern Convention on the Conservation of European Wildlife and Natural habits - <https://www.coe.int/en/web/bern-convention>; and the EU Wildlife Trade Regulations - <https://ec.europa.eu/environment/cites/legislation_en.htm> [↑](#footnote-ref-257)
258. Representative of the World Sturgeon Conservation Society, speaking at speaking at ISS8, Vienna, September 2017 [↑](#footnote-ref-258)
259. Interview with Avram, WP2.36a, Researcher, Romania, July 2018 [↑](#footnote-ref-259)
260. The exception to this ban on wild sturgeon fishing was authorised fishing for restocking initiatives. For more details on the legislative history of sturgeon management in Romania, see Rogin (2011) ‘Conservation and sustainable use of wild sturgeon populations of the North-West Black Sea and Lower Danube River in Romania’ <http://d2ouvy59p0dg6k.cloudfront.net/downloads/14_2011_conservation_use_of_sturgeon_l_danube_and_black_sea_rogin_norway.pdf> [last accessed: 02.06.20] [↑](#footnote-ref-260)
261. Email correspondence with Juliani, WP2.27, Chair of Danube regional NGO [↑](#footnote-ref-261)
262. See WWF article - ‘Ban until at least 2021 also in place in Bulgaria,’ <http://wwf.panda.org/?269190/> [last accessed: 20.05.19] [↑](#footnote-ref-262)
263. The Romanian National Fisheries and aquaculture agency, ANPA is housed under the Romanian government’s Ministry of Agriculture. The acronym NAFA refers to the English translation, and ANPA refers to the Romanian title of the agency. Interviewees switched interchangeably between the terms NAFA and ANPA. For consistency I use ANPA. [↑](#footnote-ref-263)
264. For example see the EU-funded MEASURES project: <http://www.interreg-danube.eu/approved-projects/measures> [last accessed: 02.06.20] [↑](#footnote-ref-264)
265. Email correspondence with Juliani, WP2.27, NGO Coordinator, Romania, May 2018 [↑](#footnote-ref-265)
266. DG Regio is the Directorate General for Regional and Urban Policy in the European Commission [↑](#footnote-ref-266)
267. Taken from letter sent by representative of DG REGIO to the General Director of the Romanian Ministry of Regional Development, Public Administration and European Funds, dated 15.01.18. I have chosen not to include this letter as an Appendix to this dissertation, because the content of this letter would contravene the anonymity agreements made as part of the ethical procedures of this PhD research. [↑](#footnote-ref-267)
268. Interview with Juliani, WP2.27, NGO Coordinator, Romania, May 2018 [↑](#footnote-ref-268)
269. Interview with Avram, WP2.36a, Researcher, May, July 2018 [↑](#footnote-ref-269)
270. JASPERS stands for Joint Assistance to Support Projects in European Regions. It is a technical assistance partnership between the European Commission, European Investment Bank, and European Bank for Reconstruction and Development. JASPERS provides independent advice to beneficiary countries to help prepare high quality major projects to be co-financed by two EU Structural and Investment funds (European Regional Development Fund and Cohesion Fund) <https://ec.europa.eu/regional_policy/en/funding/special-support-instruments/jaspers/> [↑](#footnote-ref-270)
271. Phrase taken from letter sent by representative of DG REGIO to the General Director of the Romanian Ministry of Regional Development, Public Administration and European Funds, dated 15.01.18. I have chosen not to include this letter as an Appendix to this dissertation, because the content of this letter would contravene the anonymity agreements made as part of the ethical procedures of this PhD research. [↑](#footnote-ref-271)
272. Email Correspondence with Juliani, WP2.27, NGO Coordinator, Romania, May 2018 [↑](#footnote-ref-272)
273. Email correspondence with Juliani, WP2.27, NGO Coordinator, May 2018 [↑](#footnote-ref-273)
274. Interview with Avram, WP2.36a, Researcher, Romania, July 2018 [↑](#footnote-ref-274)
275. Interview with Avram, WP2.36a, Researcher, Romania, July 2018 [↑](#footnote-ref-275)
276. Email correspondence with Juliani, WP2.27, NGO Coordinator, May 2018 [↑](#footnote-ref-276)
277. There was speculation amongst interviewees that the research institute may also be bribing the Biodiversity Directorate in order to win tenders, which adds another dimension to the discussion, although this cannot be verified. [↑](#footnote-ref-277)
278. Interview with Rose, WP2.10, NGO Representative, Austria, February 2018 [↑](#footnote-ref-278)
279. Email correspondence with Juliani, WP2.27, NGO Coordinator, Romania, May 2018 [↑](#footnote-ref-279)
280. Interview with Ulmer, WP2.06, DG Environment, European Commission February 2018 [↑](#footnote-ref-280)
281. Interview with Danut, WP2.37, Sturgeon Farmer and Caviar producer, Romania, July 2018 [↑](#footnote-ref-281)
282. Interview with Rose, WP2.10, NGO Representative, Austria, February 2018 [↑](#footnote-ref-282)
283. Interview with Ulmer, WP2.06, DG Environment, European Commission, February 2018 [↑](#footnote-ref-283)
284. Interestingly, in February 2020 the European Commission put Romania on notice, and launched a sanctions procedure against the country over the issue of illegal logging and timber trade. See: ‘Commission pressures Romania to halt illegal logging’ <https://www.eurosite.org/brussels/commission-pressures-romania-to-halt-illegal-logging/> [last accessed: 02.06.20] and ‘Criminalisation, Crisis Narratives and the Commission: the fight against deforestation in Europe’ <https://biosecproject.org/2020/05/19/blog-criminalisation-crisis-narratives-and-the-commission-the-fight-against-deforestation-in-europe/> [last accessed: 02.06.20]. This demonstrates that the EU is prepared to intervene into issues of environmental crimes in Member States. The issue of illegal logging in Romania has garnered significant media and public attention in recent months, with mounting pressure placed upon the EU to intervene. Sturgeon crime issues appear to garner much less popular attention in comparison. [↑](#footnote-ref-284)
285. Interview with Michael, WP2.02, Ex-enforcement officer, UK, December 2017 [↑](#footnote-ref-285)
286. Interview with Rose, WP2.10, NGO representative, Austria, February 2018 [↑](#footnote-ref-286)
287. Interview with Lipa, WP2.28a, ANPA, May 2018 [↑](#footnote-ref-287)
288. Interview with Wilhelm, WP2.13, CITES Secretariat, (Skype interview), February 2018 [↑](#footnote-ref-288)
289. Interview with Wilhelm, WP2.13, CITES Secretariat, (Skype interview), February 2018 [↑](#footnote-ref-289)
290. The precautionary principle is used in environmental debates to argue that if there is a suspicion that an activity may have negative or harmful environmental consequences, then it is better to control the situation now rather than wait for incontrovertible scientific evidence to prove or disprove the possibility of environmental harm. [↑](#footnote-ref-290)
291. Interview with Wilhelm, WP2.13, CITES Secretariat, (Skype interview), February 2018 [↑](#footnote-ref-291)
292. Interview with Wilhelm, WP2.13, CITES Secretariat, (Skype interview), February 2018 [↑](#footnote-ref-292)
293. Interview with Wilhelm, WP2.13, CITES Secretariat, (Skype interview) February 2018 [↑](#footnote-ref-293)
294. In 2014 Russia annexed Crimea following a referendum – the results of which have not been recognised by the international community. Ukraine and the majority of international governments continue to recognise Crimea as part of Ukrainian territory, and do not view the Russian annexation as legitimate. The geopolitical status of Crimea is subject to continuing territorial disputes between Ukraine and Russia. The currency, taxation system and legal system in Crimea are all currently under de-facto Russian control. The UN General Assembly has adopted a non-binding resolution that considers the referendum and annexation as invalid, and reaffirms Ukrainian territorial integrity. [↑](#footnote-ref-294)
295. ‘Nato Calls on Russia to withdraw from Crimea, cease its support to militants in Eastern Ukraine’, Unian Information Agency, <https://www.unian.info/politics/10560027-nato-calls-on-russia-to-withdraw-from-crimea-cease-its-support-to-militants-in-eastern-ukraine.html> [Last accessed: 24.05.19] [↑](#footnote-ref-295)
296. Interview with Wilhelm, WP2.13, CITES Secretariat, (Skype interview) February 2018 [↑](#footnote-ref-296)
297. Interview with Wilhelm, WP2.13, CITES Secretariat, (Skype interview) February 2018 [↑](#footnote-ref-297)
298. Interview with Wilhelm, WP2.13, CITES Secretariat, (Skype interview), February 2018 [↑](#footnote-ref-298)
299. UAE is home to the world’s largest caviar factory’ <https://www.abc.net.au/news/2016-04-19/world-largest-caviar-factory-in-abu-dhabi/7336760> [last accessed 28.05.19] [↑](#footnote-ref-299)
300. ‘Your high quality caviar might just be made in China’ <http://time.com/5070817/china-caviar-beluga-sturgeon-farmed-kaluga/> [last accessed: 28.05.19] [↑](#footnote-ref-300)
301. ‘Caviar market Research’ <https://www.sisinternational.com/the-russian-caviar-market/> [last accessed: 02.06.20] [↑](#footnote-ref-301)
302. Interview with Oliver, WP2.03, Intelligence Officer, UK, December 2017 [↑](#footnote-ref-302)
303. Interview with Michael, WP2.02, Ex-enforcement officer, UK, December 2017 [↑](#footnote-ref-303)
304. See article on The Fish Site (2019) ‘Is the Aquaculture of invasive and non-native species worth the risk?’ <https://thefishsite.com/articles/is-the-aquaculture-of-invasive-and-non-native-species-worth-the-risk> [last accessed: 02.06.20] [↑](#footnote-ref-304)
305. Interview with Danut, WP2.27, Sturgeon Farmer and Caviar producer, Romania, August 2018 [↑](#footnote-ref-305)
306. Wild boar are proliferating in the EU: the population is increasing annually by 20%, leading to increased disease transmission and damage to crops and environments. See von Essen (2019) [↑](#footnote-ref-306)
307. ‘Boar Wars: How wild hogs are trashing European cities’ <https://www.theguardian.com/world/2019/jul/30/boar-wars-how-wild-hogs-are-trashing-european-cities> [last accessed: 15.02.20] [↑](#footnote-ref-307)
308. ‘Russian Sturgeon invading British waters’ <https://www.telegraph.co.uk/news/uknews/1543766/Russian-sturgeon-invading-British-waters.html> [last accessed: 06.06.19] [↑](#footnote-ref-308)
309. Interview with Irini, WP2.26, NGO National Project Coordinator, Romania, May 2018 [↑](#footnote-ref-309)
310. Countries of the Danube River Basin are identified on the following map:<https://www.icpdr.org/main/danube-basin/countries-danube-river-basin> [last accessed: 06.06.19] [↑](#footnote-ref-310)
311. For more information on dams in the Danube River Basin: <https://www.icpdr.org/main/issues/dams-structures> [last accessed: 07.06.19] [↑](#footnote-ref-311)
312. Statistics taken from ICPDR webpage ‘Dams and Structures’: <https://www.icpdr.org/main/issues/dams-structures> [last accessed: 07.06.19] [↑](#footnote-ref-312)
313. Interview with Juliani, WP2.27, NGO Coordinator, Romania, May 2018. See also the 2018 ICPDR ‘Sturgeon strategy’ which details how the Iron Gates Dam has cut off sturgeon migration routes.

     <https://www.icpdr.org/main/sites/default/files/nodes/documents/om-20_-_3.4_icpdr_sturgeon_strategy_endorsed_version_final.pdf> [last accessed: 02.06.20]; and the following WWF website which lists some of the environmental impacts of the Iron Gates Dam system: <http://danube.panda.org/wwf/web/search/details.jsp?pid=77> [last accessed: 02.06.20] [↑](#footnote-ref-313)
314. Interview with Danut, WP2.37, Sturgeon Farmer and Caviar Producer, Romania, August 2018 [↑](#footnote-ref-314)
315. Interview with Irini, WP2.26, NGO National Project Coordinator, Romania, May 2018 [↑](#footnote-ref-315)
316. For more information on dams in the Danube River Basin: <https://www.icpdr.org/main/issues/dams-structures> [last accessed: 07.06.19] [↑](#footnote-ref-316)
317. Representative of the World Sturgeon Conservation Society speaking at ISS8, Vienna, September 2017. Similar conclusions are made in a 2019 multi-agency report on ‘Hydropower pressure on European rivers’, which states that: The high number of hydropower plants in Europe can be explained by the dominance of small plants…Small hydropower plants come with a large ecological impact because they are numerous and disrupt river continuity, whilst contributing minimally to electricity production.

     <https://d3bzkjkd62gi12.cloudfront.net/downloads/hydropower_pressure_on_european_rivers_the_story_in_numbers_web.pdf> [last accessed: 02.06.20] [↑](#footnote-ref-317)
318. Representative of WWF International, Speaking at ISS8, Vienna, September 2017. WWF have also been part of a multi-agency study into ‘Hydropower pressure on European Rivers’ published in 2019: <https://d3bzkjkd62gi12.cloudfront.net/downloads/hydropower_pressure_on_european_rivers_the_story_in_numbers_web.pdf> [last accessed: 02.06.20] [↑](#footnote-ref-318)
319. Representative of DG Environment, European Commission, Speaking at ISS8 Vienna, September 2017 [↑](#footnote-ref-319)
320. Representative of WWF International, Speaking at ISS8, Vienna, September 2017. The conflict between the energy and economic benefits of hydroelectric power versus the impact upon biodiversity and environments, has also been demonstrated in other global riverine contexts including the Amazon, Congo, and Mekong. See (2016) WWF blog: ‘Finding a balance for hydropower and Biodiversity’ <https://www.worldwildlife.org/blogs/sustainability-works/posts/finding-a-balance-for-hydropower-and-biodiversity> [last accessed: 02.06.20] [↑](#footnote-ref-320)
321. Representative of WWF International, Speaking at ISS8, Vienna, September 2017 [↑](#footnote-ref-321)
322. Representative of WWF International, Speaking at ISS8, Vienna, September 2017 [↑](#footnote-ref-322)
323. Interview with Juliani, WP2.27, NGO Coordinator, Romania, May 2018 [↑](#footnote-ref-323)
324. Representative of WWF International speaking at ISS8, Vienna, September 2017 [↑](#footnote-ref-324)
325. Representative of WWF International speaking at ISS8, Vienna, September 2017 [↑](#footnote-ref-325)
326. The 2018 ICPDR sturgeon strategy: <https://www.icpdr.org/main/sites/default/files/nodes/documents/om-20_-_3.4_icpdr_sturgeon_strategy_endorsed_version_final.pdf> [last accessed: 02.06.20] [↑](#footnote-ref-326)
327. The EU Strategy for the Danube Region (EUSDR) is a macro-regional strategy adopted by the European Commission in December 2010 and endorsed by the European Council in 2011. The Strategy was jointly developed by the Commission, together with the Danube Region countries and stakeholders, in order to address common challenges together. The Strategy seeks to create synergies and coordination between existing policies and initiatives taking place across the Danube Region. <https://danube-region.eu/about/> [↑](#footnote-ref-327)
328. This research was conducted as part of the European Research Council funded ‘BIOSEC: Biodiversity and Security’ project. The project investigates the increasing intertwining of biodiversity conservation, illegal wildlife trade, and security, from a number of global contexts, and with a focus on a number of species and technologies. See: <https://biosecproject.org> [↑](#footnote-ref-328)
329. ‘Poachers are not afraid of viruses: 2 sturgeon rescues, 2 countries, 2 days’.

     <https://wwf.panda.org/knowledge_hub/where_we_work/black_sea_basin/danube_carpathian/?361398/ua-and-bg-sturgeon-poachers> [last accessed: 22.05.20] See also: ’26 Sturgeon caught in fishing nets freed by Romanian Danube Delta Law enforcement’ <https://wwf.panda.org/?363930/26-sturgeon-freed> [last accessed: 03.06.20] [↑](#footnote-ref-329)