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Hungry for More: Examining How Cultures of Increasing Demand Drive the Decline of the European Eel

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Abstract

European eels have attracted considerable interest in recent years, amidst growing illegal markets and plummeting wild populations. While the shifting dynamics between legal and illegal trade are of clear interest to criminologists, little attention has been paid to the confluence of the legal – yet still harmful – activities that threaten the species. To address this gap, we build on a green criminological position and draw together research from across France, the Netherlands, Portugal, Spain and the United Kingdom to shine a light on the drivers of demand that shape harms towards the species. We examine both direct drivers of demand, for example, fisheries and globalised food networks; and indirect drivers of demand for "natural resources" such as energy, water and land. By framing demand as a source and driver of harms, we reveal how cultures of demand, particularly in the Global North, are both blind to and disconnected from the harms they produce.

Keywords: Demand–harm nexus; European eel; green-cultural criminology; hierarchy of harms; lawful wildlife harm.

Introduction

European eels (*Anguilla anguilla*) have been on this planet for millions of years. Their longevity, combined with their historically abundant presence and ability to tolerate polluted and degraded environments, has led to a reputation of being resilient to anthropogenic pressures (Jellyman, 2022). In reality, however, the number of juvenile eels (also referred to as glass eels) arriving in European waters is believed to have dropped by up to 98 per cent compared with the populations that arrived in the 1960s and 1970s (Dekker, 2019; ICES, 2017), leading this once-abundant species to be classified as critically endangered by the IUCN[1] (Pike et al., 2020).

The eels' transatlantic, transboundary occurrence exposes them to a myriad of complex threats across marine and freshwater realms (Hanel et al., 2019). As juveniles, eel larvae (leptocephalus) are subject to the pressures of oceanographic warming, acidification and pollution (Drouineau et al., 2018). As they develop into adults and journey inland, they face additional pressures: riverscapes become increasingly polluted and fragmented by barriers and their migration routes are blocked by turbines and watercourse engineering. Anthropogenic pressures additionally lead to stress-induced disease and human-introduced parasites (Emde et al., 2014; Environment Agency, 2021). In the midst of this combination of pressures, both juvenile and adult eels are also intensively fished across their range (Drouineau et al., 2018) and large quantities of juvenile (glass) eels are syphoned into aquaculture facilities to meet global demand (Dekker, 2019; Hanel et al., 2019).

Following CITES[2] and EU[3] trade restrictions, demand from the fishery sector has become increasingly lucrative (Outhwaite & Brown, 2018; ICES, 2017). A combination of low-risk and high reward dynamics, limited enforcement capacities, high demand and financial incentives, and blurred boundaries between legal and illegal trade makes the species vulnerable to significant illegal exploitation (Alonso & van Uhm, 2023a; EUROPOL 2021). Despite the trade restrictions, discrepancies in regulatory frameworks are exploited by legal and illegal actors; Asian farming facilities continue to be supplied with European eels from both legal and illegal channels (Alonso & van Uhm, 2023a; Pons-Hernandez, 2024b; Stein et al., 2024) and there have been numerous reports demonstrating the close ties between the illegal trade of eels, legal businesses, and fishery management practices (see Alonso & van Uhm, 2023b; Gutierrez & Duffy, 2023; Pons-, 2024b; Stein et al., 2024). When examining illegal or unsustainable markets, an emphasis is often placed on Asian markets and consumers (UNODC, 2020). However, this framing detracts from the underlying demand and consumption patterns in the Global North and fails to frame the drivers of demand within capitalist systems of globalised trade and over-exploitation.

Focusing only on fishery-related pressures can minimise the visibility of the structural dynamics that underpin the expansive range of threats towards the species (Gutierrez & Duffy, 2023). Beyond eel fisheries, other harms faced by the eel are less well defined and understood. For example, the problem of injury, illness and death from water abstraction, pollution and infrastructure development is a significant threat to eels and other wildlife but is still poorly understood and minimally addressed. Shedding light on the range of harms facing the European eel is vital to inform management plans and conservation policy to prevent the further decline and potential extinction of the species. However, to date there has been insufficient attention to the broader anthropogenic drivers of wildlife harm in the green criminological literature (Lynch et al., 2020), and even less recognition for the ongoing role played by countries in the Global North in the decline of the European eel.

We set out to redress this imbalance by examining the wider scope of harms impacting the European eel and by placing these harms in the context of the drivers of demand that underpin and sustain them. We combine three independent research projects focusing on the trade and exploitation of the European eel to present a comprehensive picture of the drivers of demand that threaten the species. We first introduce how green-cultural criminology and political economy perspectives provide the necessary foundation to expand attention to wildlife and environmental harms, and to place these harms in their social, ecological and political contexts. We then detail our research methods and describe the combination of the research projects across Europe. Following this, we focus on the direct and indirect drivers of demand that threaten the species. Through this analysis, we discuss how Western norms and consumption patterns support the continued extraction and degradation of natural environments, irrespective of the pressures and consequences for non-humans and the natural world. We conclude by emphasising the need to amplify criminological attention to the indirect drivers of demand that may be inappropriately perceived as harmless but, under the surface, make life for all more perilous.

Conceptual Framework

Green Criminology and Wildlife Harm

Green criminology is now a well-established and substantial sub-discipline within criminology (Brisman & South, 2020). Expanding upon critical criminological roots, the perspective provides "a *unifying* theme and *rallying point*" (South, 1998, p. 220) to consider both criminalised and non-criminalised (but harmful) acts and omissions that contribute to the victimisation of marginalised peoples, non-humans and the natural world (Lynch et al., 2020; Nurse, 2022a; White, 2013a). While scholarship is diverse, there is a strong affinity towards "lawful but awful" harms suffered beyond the human-sphere (Passas, 2005, 773). This has proliferated a wealth of research surrounding legally permissible, state-authorised and business-as-usual harmful acts, including animal exploitation and abuse (Beirne, 2014; Goyes & Sollund, 2018), the wildlife trade (Sollund, 2019; van Uhm, 2020; Wyatt, 2021); and biodiversity decline and species extinction (Brisman & South, 2020; Lynch et al., 2020; White, 2013a). Such scholarship frequently recognises that these issues are united by a common anthropocentric thread, where non-humans and the environment are defined as *property* or *resources*, irrespective of their inherent value or claim to rights (Brisman & South, 2020; Gacek & Jochelson, 2020).

Far from being a singular enterprise, green criminology accommodates different research agendas (traditional and critical), theoretical orientations and eco-philosophical perspectives, and is attentive to harms at the individual, corporate and state levels (Agnew, 2020; Gladkova Et al., 2020; Lynch & Long, 2022). This fluid approach has allowed the field to engage with, borrow from and build on criminological and interdisciplinary practices to strengthen the study of green harms and crimes. To concentrate attention on how patterns of demand shape the actualisation of harms towards the European eel, this study follows a multifaceted green criminological approach and is further supported by cultural criminological and political economy perspectives.

Understanding Harms Through the Lens of Cultural Criminology and Political Economy

While expanding traditional definitions of crime to encompass harm has become the cornerstone of green criminological study, Brisman and South (2013) emphasise that green criminology must look towards the ways in which green harms are represented and the processes through which non-human species and the environment are commodified and marketed for exploitation. Cultural criminology is particularly attentive to emotional and political representations of harms and crimes and brings a rich appreciation to the situated politics, collective meaning and power dynamics surrounding these issues (Ferrell et al., 2015; Natali, 2016; Young, 2014). By aligning a cultural lens with green criminology, the social and political nuances that produce collective meaning surrounding the commodification and population decline of the eel can be examined more thoroughly.

To further connect the drivers of the eel's decline within the broader context of capitalism, wildlife consumption and environmental harm, we also draw from political economic theories, particularly the treadmill of production (ToP) framework (Stretesky et al., 2013). The ToP perspective provides an analogy for understanding and interpreting how a neoliberal political-economic system gives rise to ecological disorganisation (i.e., the condition in which ecosystems cannot regenerate their integrity and functioning) by seeking continual increases in production, consumption and profit, and maintaining a reliance on fossil fuels and non-renewable energy sources (Lynch et al., 2015; Whyte, 2020).

Attention to the cultural and political-economic rhythms of power and demand demonstrate the culpability of Western neoliberal and capitalist systems in producing environmental harms. For example, Brisman and South (2014) describe how overconsumption in Western societies has become a core driver of environmental degradation, while Lynch et al. (2020) additionally connect an increasing reliance on fossil fuels and natural resources to an increasing loss of environmental integrity. Stretesky et al. (2013) and Goyes (2023) further highlight how the damaging impacts from the commercialisation of nature are displaced to the marginalised and less-powerful peripheries, where out of sight often equates with out of mind.

Methods

Each of the authors has independently focused on the criminogenic relationships surrounding the trade and exploitation of the European eel. The material within this article is drawn from their combined research, which spans Bermuda, the Sargasso Sea and the United Kingdom (Hutchinson), Portugal and Spain (Pons-Hernandez) and France, the Netherlands, Portugal and Spain (Ibáñez Alonso). Research activities took place between 2020 and 2024 and utilised a combination of methods including semi-structured interviews, participant observation, informal conversations, and document and literature analysis. Table 1 provides a summary of these approaches. All interview participants were informed of the purpose of the research and gave informed consent prior to participation. Participants were also given the opportunity to review and amend quotations used, which have also been anonymised for confidentiality.

Interviews and observations were carried out in Gloucestershire and around the River Severn in Southern England (Hutchinson); in the transboundary region of the River Minho (the natural border between Spain and Portugal), key river basins and their fishing towns in Spain (e.g. Ebro Delta (Deltebre, La Cava, Sant Jaume d'Enveja in Catalonia), Nalón River (Soto del Barco and San Juan de la Arena in Asturias), and Oria and Deba Rivers (Aguinaga, Orio, Deba in Basque Country) (Pons-Hernandez); and in the fishing and trading towns of Cudillero, San Juan de la Arena, Aguinaga, Arzal, Cordemais and Saint-Nazaire, and along the Oria, Nalón, Loire and Vilaine Rivers (Ibáñez Alonso). Participants of interest were generally identified through purposive sampling, with the participant base expanded through snowballing sampling (Davies & Francis, 2018). Interviews were mainly directed towards people involved in European eel fisheries and eel conservation science; as such, these perspectives are much richer throughout the findings and discussion sections.

Table 1

Overview of Author's Respective Research Projects

Background and data gathering	**Researcher**		
	Hutchinson	**Pons-Hernández**	**Ibáñez Alonso**
Research context	Research undertaken for the "Beastly Business" project at the University of Sheffield (UK) and supported by the Economic and Social Research Council [ES/V00929X/1]	Research undertaken in fulfilment of a PhD at the University Rovira i Virgili (Spain) supported by the Martí Franquès Research Fellowship Programme [2022PMF-BS-1]	Research undertaken in fulfilment of a masters dissertation at Utrecht University (the Netherlands)
Semi-structured interviews	✓	✓	✓
Fishers*	5 (+)	5 (+)	4
Industry representatives**	2	3	2
Government and enforcement agencies	2 (+)	2 (+)	9
NGO groups	2	2	1
Academics, researchers	2	2	2
Observations	✓	✓	✓
Further details	Fishery activity during the 2022–23 elver season along the River Severn in the UK.	Fishery activity during the 2021–22, 2022–23 and 2023–24 seasons across the Iberian Peninsula.	Fishery activity during 2019–20 across the Iberian Peninsula and France.
Literature review	✓	✓	✓

*Fishers refers to both commercial, recreational, and illegal fishers.
**This group may include parties who are operating in illegal spheres.
+ Additional informal conversations were also held.

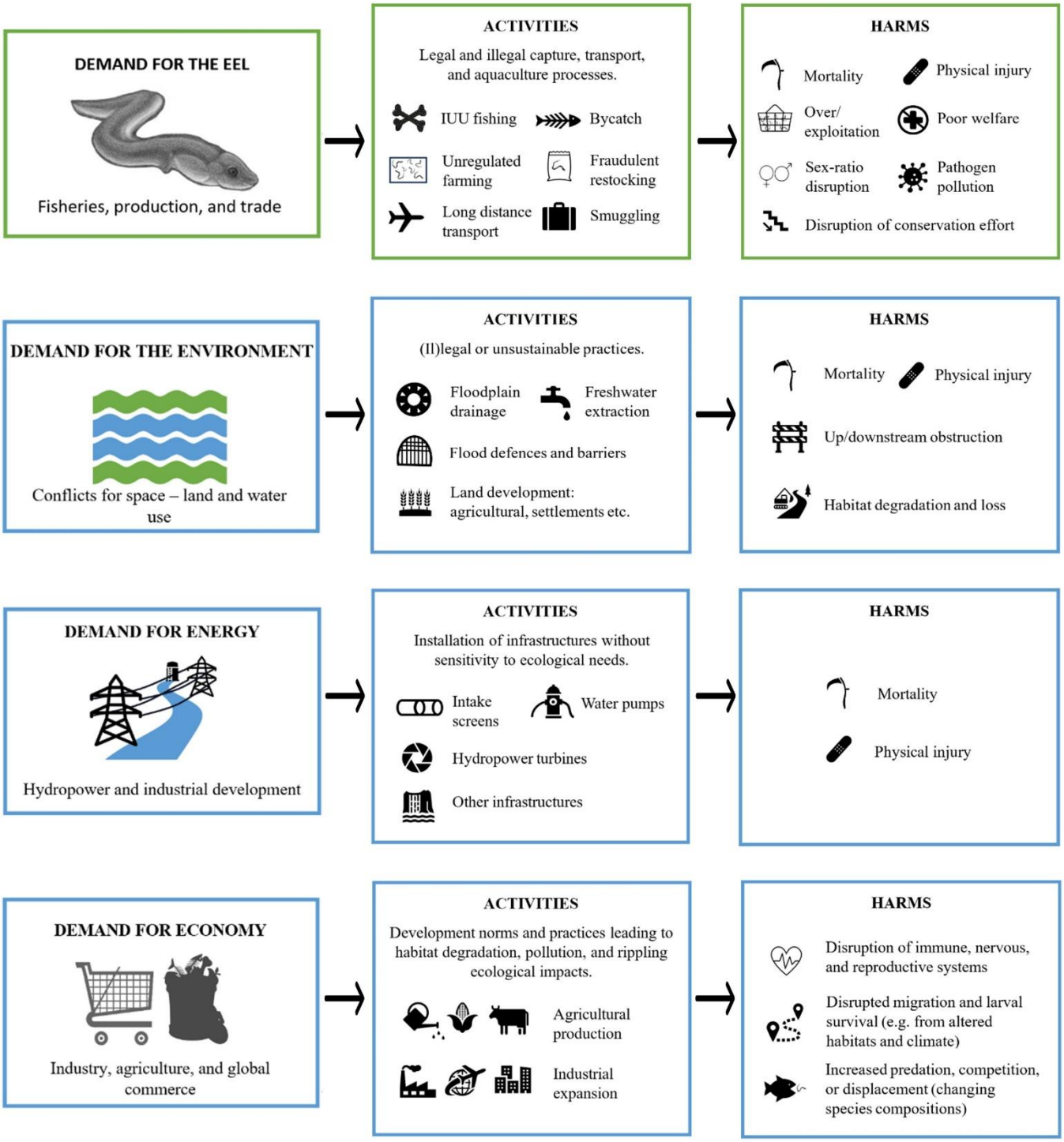
To assess common themes between our respective projects, we began by categorising harms towards the eel by direct and indirect drivers of demand. Direct drivers are those relating to direct exploitation from fisheries, trade and food consumption, while indirect drivers include threats from external demand for "natural resources", upon which the eel also relies. For example, humans' demand for energy and hydro-power development conflicts with the eel's need for a safe, secure and available habitat. Whilst eels are not the primary focus of this demand, they are *indirect* victims of it. Through this categorisation, we have identified four key drivers of demand:

1. direct demands for the eel from fisheries, globalised trade and consumption of eel meat;
2. indirect demands for the environment (e.g. conflicts over space, land and fresh water);
3. indirect demands for energy (e.g. hydropower and infrastructure); and
4. indirect demands for economic function (e.g. capitalism and global patterns of consumption).

This four-point framework forms the structure of the following sections, where we examine how each of these drivers of demand is politically and socially understood and how responses to minimise harms from each of these drivers are prioritised.

Figure 1

Pathways to Harm From Direct Drivers of Demand (Green) and Indirect Drivers of Demand (Blue)



Note: While these activities and harms have been documented and discussed during our combined interviews and observations, they are not an exhaustive representation of the harms faced by eels.

Findings

Our combined research across five European eel-range countries and the Sargasso Sea reveals how a combination of activities puts increasing pressure on the species. In addition to threats stemming from legal and illegal fishing and farming (direct demand), we also document numerous external pressures, including but not limited to land development, water abstraction, energy generation and industrial expansion (indirect demand). We present a map of these pressures and the harms they produce in Figure 1, before discussing each driver in turn.

Direct Drivers of Harm

Demand for the Eel: Fisheries, Globalised Trade and Consumption of Eel Meat

The exploitation of eels has a long history throughout Europe with deep cultural connections. In Gloucester, England, fishers described how they knew the elvers would be arriving when the daffodils started to bloom, while in some parts of Spain, the arrival of glass eels is synonymous with Christmas festivities. However, over the last few decades, these close cultural entanglements with the eel have rapidly been replaced by a growing global market and the intensification of production and consumption. This growing demand for eel meat is primarily met by supplying wild-caught glass eels to aquaculture facilities, mostly in Asia. During our combined analysis, we have documented how this market perpetuates numerous harms, from aggressive and indiscriminate killing, stress and illness during the capture stage to a disruption in population dynamics and the introduction of pathogens during farming processes (see Figure 1, first row).

When discussing harms towards the eel, interviewees frequently interpreted and prioritised harm differently, often shifting attention and responsibility to other groups. Broadly speaking, the attention of interviewees was focused largely on clear-cut illegal trading and fishing practices (a focus that is also mirrored in political attention). Attention was frequently trained towards Asian demand rather than wider demand in Global North countries. For instance, one industry representative in England commented:

> The eel regulation and the CITES listing … puts a plug in the bath to stop all the eels going down the plughole to Asia, where there's an insatiable demand. [Without this intervention, demand] will just empty all the rivers again.

However, this perception that harms are only derived from exploitation driven by Asian demand is somewhat misdirected. Following international trade restrictions,[4] the EU market has continued to commercially exploit eels. A Spanish eel trader described how they had to adapt and expand inwards:

> We started to restructure the company. We were exporting to Asian countries [but since the trade restrictions in 2009], we began to strengthen the European market.

This breaks down the narrative that externalises harm beyond European borders. The redirection of attention towards Asian markets (a theme repeated throughout our joint investigations) highlights how the social construction of harm has become disconnected from the reality of harms produced by exploitation and consumption of the eel in the Global North.

Additionally, the social construction of harm and blame from legal fishing and trading activities appear to be misdirected by the actors involved. Fishers often directed attention towards illegal fishing and farming activities with minimal acknowledgement of the harms from legitimate fishing and trading practices. This reframing effectively diverts accountability for harm from fishers to *poachers* and from traders to *traffickers*. For example, eel fishers often directed attention to illegal fishers and glass eel traders, with one Portuguese fisher describing how illegal fishers have a lack of interest in sustainability or care for the eels' survival:

> The poaching method is very aggressive, and poachers cannot take them [the fine-mesh nets] out for even two or three days if police are around, so every fish inside dies.

Even when harms from fishing were acknowledged directly, the responsibility for these harms was often redirected to other groups. For example, an eel fisher in France described how there is little incentive to reduce mortality rates because such efforts are not recognised or compensated:

> We kill many glass eels and that's true, but because the *mareyeur* [glass eel traders] do not differentiate between sustainable or high mortality glass eels they don't count on that effort.

This redirection effectively transfers responsibility for harm from the fisher onto the trader. In a similar vein, interviewees also identified how harms are amplified through legal (mal)practices. Fishers and traders were attentive to the harms caused by farming and aquaculture practices. For example, a glass eel trader described how fraudulent farming and restocking practices in the Netherlands and Germany can disrupt the wild sex ratio of eels:

> Farms … mix both batches [restocking and farming], they grow them, and after some months they are able to differentiate between male and female, since females grow faster. Then, they basically keep the females for farming and release the males for restocking.

The transport of eels for both farming and reintroduction was also connected to numerous harms. For instance, transport necessitates the confinement of eels in closed tanks, which can induce significant stress and lead to many eels perishing from suffocation. One participant described how farms that mixed European and Japanese eels in the same facilities caused the spread of a parasite that is now endemic to the European eel and hinders their ability to migrate and spawn. While such malpractice pose significant threats to individual eels and the wider population, recognition of these harms was often superseded by a focus on criminal activity and external markets. Recognising that there is a hierarchy of attention to harms, we next turn our attention to the perhaps less-visible indirect drivers that threaten the species.

Indirect Drivers of Harm

Beyond direct demand from fisheries and consumption, eels are also indirectly threatened by demands for the environment (space, land and fresh water), for energy (hydropower and industry) and for sustaining economic function (capitalism and global consumption). We have presented these demand drivers in Figure 1. Numerous interviewees highlighted the need to address these issues in unison, emphasising that river and oceanographic changes, the transformation of habitats, pollution, exploitation and climate change must be addressed collaboratively to effectively reduce threats towards the eel. We now consider each of these indirect drivers in turn.

Demands for the Environment: Space, Land and Fresh Water

Floodplain drainage and the unsustainable, often illegal, utilisation of freshwater resources are major contributors to eel habitat loss and significantly impact the survival of the species (Feunteun, 2002). Despite being monumental in scale, interviewees described how the impacts from land use change and habitat loss are often minimised in favour of the human benefits they produce. For example, one fishery industry representative described the problem of meeting food production needs at the expense of the environment:

> European fresh water is the most depleted habitat on the planet … the species that live there are 93% declined … Spain turned into a huge food crop for the EU. Very successful, yes, it's worked – but the environment is paying an incredible price.

This decline in freshwater fish is particularly significant in Europe (see Deinet et al., 2020), where the fragmentation and drainage of eel habitats have largely supported the expansion of land for agricultural and livestock development. For example, one interviewee described how the Guadalquivir marshes and aquifer in Spain have been exploited at unsustainable levels for decades and another noted how illegal wells and water theft have become common practices to support agricultural production, leading to substantial loss of wetlands and critical eel habitat.

Beyond these conflicts in demand for land, the rivers inhabited by eels are also increasingly being compromised. Artificial barriers such as dams and other blockages are thought to have made between 50 and 90 per cent of eel habitat inaccessible (Feunteun, 2002). As river engineering has improved, these barriers have transitioned from small-scale wooden structures to impenetrable, expansive, concrete blockades. In the United Kingdom, a combination of habitat loss and barriers to migration means that the Severn estuary often rapidly reaches carrying capacity during the influx of upstream migrating glass eels, as one interviewee noted:

> What's the point [of] leaving them [glass eels] in rivers and estuaries of the Bay of Biscay or the Bristol Channel when there isn't enough habitat for them? They're suffocated out of those habitats by the barriers. The attrition rate is crazy because they're blocked and barriered, there isn't the habitat to support such a vast number.

In addition to preventing the movement of eels, barriers also alter the delicate ecology of riverscapes, as one Spanish fisher described:

> Nowadays they have opened a dam and they have left the river without oxygen in December, all the way up to the mouth in Sanlúcar. And we have seen that – we do not have studies, but we know what is there … I have reported cases of canal cuts because the fish were dying.

Dams and river engineering are responses to increasing agricultural demand for scarce water resources. However, river management also serves a growing demand for hydropower energy. These demands for space and energy are overlapping and demonstrate a conflict between the needs of humans and those of eels. We discuss how demand for energy impacts eels in the next section.

Demands for Energy: Hydropower and Infrastructure

Throughout Europe, a growing demand for "green energy" has brought with it a proliferation of hydropower development. Hydropower turbines and intake screens obstruct the natural migration patterns of eels and contribute to significant human-induced eel mortality (ICES, 2017; Tesch, 2003). A fishery representative in Spain described how the development of large-scale "mega-plants" has had a particularly bleak impact on eels; by completely preventing the passage of eels both up and downstream:

> These dams hardly kill eels because there are no eels above the turbines – since they cannot climb this monstrosity.

Interviewees frequently framed the problem of eel mortality around human needs. For instance, one asked:

> Who's gonna stop drinking? Who's gonna switch off their electricity?

Another interviewee commented:

> Realistically, [will we ever be] at a point where we will shut down hydropower plants, given the energy problems we have?

The intersection of harms between human forces of demand (for the environment and energy) and the ecological needs of the eel for space (habitat) and security (ability to move and migrate within their environment in safety) highlights how these indirect drivers of demand produce harm in ways that are often overlooked. The final section will draw these themes together with a focus on globalised systems of production and consumption that trigger harms toward the eel.

Demands for Economic Function: Capitalism and Global Consumption

We now turn our attention to threats that arise from business-as-usual and "normal" systems of production and consumption. These threats were often presented secondarily to other concerns, but nonetheless signify how anthropogenic activities can produce detrimental impacts on the eel and its ecosystem. For example, nets used for catching shrimp can lead to unintentional by-catch of glass eels. Other problems revolve around the disregard for the eels' ecological niche. For example, interviewees noted how invasive species such as catfish and blue crabs had been introduced to the eels' habitat through shipping and global trade networks, leading to interspecies competition and predation. Similarly, over-exploitation of coastal fish has led to the expansion of the great cormorants' range, and consequently an increase in the predation of eels.

Looking beyond the ecological challenges associated with freshwater and marine species exploitation, we can also contextualise harms by the pollution produced by global economies and industries. It is thought that around 80 per cent of all industrial and municipal wastewater is released into the environment untreated (UN Water, 2024), and just seven sectors – food, textiles, energy, industry, chemical, pharmaceuticals and mining industries – are responsible for 70 per cent of global freshwater use and pollution (CDP, 2018). Numerous interviewees described first-hand accounts of the impacts from increasing pollution:

> There are pollution problems in rivers like the Guadaíra … from time to time, they take the opportunity to release waste, especially in the olive oil production area, and other industries.

Another noted:

> The brackish area of Guadalquivir is also heavily affected by pollution from maritime traffic.

While pollution is environmentally damaging, the impact on life and ecological systems is undeniable, as one interviewee stated:

> Most of the pollution on the high seas originates from land-based sources … [The consumption of microplastics] allows for bio-accumulation of plastics in food chains, causing detrimental effects on organisms.

This pollution poses significant challenges for eels. Over their life-cycle, they accumulate heavy metals and pesticides, which can impact their immune, reproductive, nervous and endocrine systems (ICES, 2017; Hanel et al., 2019), with rippling impacts on their breeding and migration success and larval survival (Feunteun, 2002). By framing pollution as a result of demand for economic function, we can understand this issue and the threats toward the eel in the context of post-capitalist economies that prioritise profit over ecological integrity.

This framing of economic demand can also help to interpret harms from anthropogenic climate change. While only a few interviewees mentioned the threat posed to the European eel by climate change, the climate crisis is possibly the most significant and impenetrable threat to the species. While the absence of rich discussion around the impacts of climate change may reflect our focus on fishery groups and threats within and around the fishery sector, the fact that this issue was never discussed as a core threat to the species speaks to the prioritisation of attention to fishery groups (and to a lesser extent to other industries). Now we have discussed each of the direct and indirect drivers of demand, we turn to a combined discussion of these elements.

Discussion

To understand the victimisation of the eel through the combined lens of green-cultural criminology and the treadmill of production framework, we take heed of White's (2002) assertion that: "to understand consumption [of nature] as a social relation, it is essential to consider the objective developments underpinning the extension of consumption in a capitalist society" (p. 86). With this in mind, we begin the discussion by first focusing on the visibility, framing and hierarchy of harms surrounding direct and indirect demand and highlight how drivers of harm have become obscured and redirected to suit anthropocentric interests, particularly in the affluent Global North. We then discuss the symbolic ideologies of consumer societies to further contextualise how social norms and capitalist processes drive the normalisation of harms while also promoting a disconnection from the realities of harm that these processes produce.

To start with the visibility of harms, our analysis has shown how the exploitation and killing of eels occurs in a space that is both legal and illegal depending on local, seasonal and political circumstances. This fluidity is aptly illustrated through the EU domestic fishery and eel consumption markets, which typically are viewed in a romanticised sense (indicative of winter or early spring festivities) and protected as a cultural custom and tradition. This framing essentially redirects responsibilities for harm to other groups and activities (Asian consumers, illicit activities, legal malpractices) and further obscures the underlying root of harms towards the species. Pons-Hernandez (2024b) has also reported similar inconsistencies when discussing how the EU Eel Regulation restricts fishing within the European Union while simultaneously criminalising trade outside EU borders; such practices effectively accommodate the economic interests of fishers, traders and consumers in the Global North while directing attention to Asian consumers.

These shifting perspectives on what is harmful and who is to blame speak to the social construction of harm surrounding the eel. While it is true that international trade in glass eels predominantly supplies aquaculture markets in East Asia, and Japan has traditionally been the main import country of eel products (Shiraishi & Crook, 2015), the eels raised in Asian farms are consumed *globally*. Adult eels are processed into Japanese-style products, which are becoming increasingly popular throughout Europe and other affluent markets in China, Japan, South Korea, Canada and the United States. But by romanticising and constructing inter-EU trade as legitimate and focusing only on Asian demand, the full circle of this demand–harm relationship – from European rivers to Asian farming facilities, and back to European and Global North markets – is largely minimised and obscured from view. Indeed, the romanticisation of eel fishing in Europe as a traditional, local, sustainable practice mirrors Brisman & South's (2014) concept of "good" consumers in that fishery groups often contend that fishing practices are a form of protective stewardship for the eel (for example, in relation to restocking and assisted migration practices). This transient social and political construction of legality allows for exploitation to be simultaneously recognised as both harmful (Asian, illegal markets) and harmless (EU, legal markets) irrespective of the fact that the harm to eels remains the same.

In addition to a redirection of harm, we have also demonstrated how attention towards individual harms experienced by the eel is largely obscured. While harms to the overall population were generally well discussed by participants, harms to individual eels were rarely meaningfully considered. For example, participants frequently described eel deaths during transport and farming as an acceptable and normal cost of doing business. Many interviewees additionally noted the absurdity of changing water or energy consumption activities to benefit the eel. While population-level impacts were well recognised by participants, the injury, suffering and death of millions of individual eels as a result of these harmful practices were largely overlooked. This obscuring of individual harm follows a well-established pattern of disregard for the victimisation of wildlife (Sollund, 2019;

White, 2013b), stemming from anthropocentric and speciesist concepts around what makes a "worthy victim" (Wagner et al., 2019; Wyatt, 2021). This anthropocentrism is abundantly evident when it comes to the European eel, which is regarded primarily as a fishery resource to be managed and controlled by capitalist interests rather than an inherently valuable wild species that is harmed by these capitalist and anthropocentric interests (see also Hutchinson, 2023; Pons-Hernandez, 2024a).

To further contextualise how the demands from consumer capitalism contribute to both the instrumentalisation of the eel and environmental degradation, we draw from Agnew's (2020) concept of "everyday ecocide", which understands drivers of harm to be supported by commonplace, socially accepted, ordinary activities that remain largely unchallenged (p. 52). For example, in the United Kingdom, thousands of new homes are set to be built on floodplains (Newcombe, 2021). While planning policy states that new developments should take a risk-based approach "to avoid, where possible, flood risk to people and property" (UK Government, 2023), there is no mention of risks to floodplain ecosystems, nor any reference to the availability and integrity of these wetland habitats for the species that live in them (p. 48).

Consumer demands for space, water, energy, goods and services have steadily reshaped and degraded the riverscapes that have for centuries been home to the eel. Notably, the 93 per cent reduction in European freshwater fish populations (described by one interviewee) is a sad reality for the European eel (see Deinet et al., 2020), which has been driven by the reshaping, fragmentation and pollution of riverscapes across Europe. This commonplace and socially accepted ecocide shows how the "lost ecologies" surrounding the eels' decline are driven by consumer cultures that are both disconnected from, and damaging to, the eel and the wider environment (see Ferrell, 2020, p. 650).

Broadly speaking, the ordinary activities of consumers, particularly in affluent populations in the Global North, have become driven by desire rather than by need (White, 2002). For example, "essential" luxuries such as central heating, access to a diversity of fresh and intensively grown food and an unlimited supply of consumer products have become culturally constructed as both necessary and normal, and are deeply interwoven within the social fabric, ideological identity and market-driven corporate philosophies of developed nations. This everyday and luxury consumption is reliant on ever-increasing, industrialised and technologically advanced production and transport networks (Agnew, 2020) that are routinely disconnected from the ecological impacts they produce (Brisman & South, 2014; Lynch et al., 2019). Indeed, growth-orientated corporate philosophies frequently enable environmental harms and crimes to flourish (Nurse, 2022b). The fact that harms from hyper-consumption are, for the most part, government sanctioned speaks to concepts of organised state theriocide (the killing of animals – see generally Beirne, 2014; Sollund & Goyes, 2021), whereby the victimisation of the eel is an inevitable result of speciesist and institutionalised practices that prioritise development, growth and "luxury" consumption over ecological integrity and species justice.

We can further illustrate this demand–harm nexus using the expansion of "green" energy generation. While hydroelectric energy provides nations globally with the foundations for a modern – luxury consumer – society, including machinery, technology, vehicles, plastics and chemicals (to name a few), this consumption is not without negative ecological consequences, such as highly fragmented habitats and eel mortality. By expanding our treadmill of production focus, we can understand how the harms from hyper-consumption are not solely associated with the extraction and consumption of fossil fuels and other non-renewable energy sources, but also arise from alternative energy sources that are often considered as "sustainable". The fact that harms from hydropower development have proliferated so fully demonstrates how corporations and consumers have become disconnected from the harms of production, supply and consumption (Davis et al., 2014). Hydroelectric energy generation provides a prime example for how political and consumer motivations for "renewable" and "clean" energy can obscure the reality of ecological harm produced by these energy infrastructures. Indeed, to echo Dunlap (2023), the "green energy transition is only as 'green' as the money financing it" (p. 907).

Concluding Remarks: What Does This Mean for the Eel?

Through our analysis of the direct and indirect drivers of demand threatening the European eel, we have demonstrated how the leading narrative of fishery demand to supply Asian markets is too narrow to adequately describe the decline of the species and can detract from the normal, legitimate and business-as-usual practices that contribute to significant harm. By combining green-cultural criminology and political economy perspectives, we have shown that the treadmill of ecological decline is driven by a capitalist culture of consumerism. Our focus on damaging impacts from European fisheries, aquaculture and restocking practices has illustrated how demand and consumption patterns in Europe and the Global North significantly impact the species' decline. External factors driven by commercial and capitalist practices stemming from the Global North further threaten the species.

These complex drivers of demand cannot be addressed in isolation. Addressing direct exploitation via international treaties and conventions lacks a holistic focus on the wider context of harms. Interventions like the CITES Appendix II listing and EU Eel Regulation can address issues of species over-exploitation but are unable to govern local or domestic trade. By legitimising the trade in eels, these frameworks additionally support state-condoned victimisation and abuse and are unable to protect the welfare or rights of individuals (Sollund, 2022; 2023). Moving beyond trade to indirect drivers of harm, national-level eel-management plans can coordinate and address ecosystem-level impacts from agriculture, water abstraction and other pressures, but these pressures cannot be adequately addressed within geo-political borders as their impacts are far reaching. While there is room to better join up these policy and management responses, we also recognise that the social construction of harm is both a political and cultural object. Managing a small group of fishers is both politically and economically preferable compared with regulating monopolistic water and energy companies or reshaping an anthropocentric growth-driven political economy that is sustained by nature's exploitation. Despite these fundamental challenges in the shaping and visibility of, and responses to, harms, our analysis has shown how the European eels' recovery requires a long-term, holistic management focus on all harm drivers, rather than a quick, short-term focus on fisheries and populations that inevitably misses broader systemic harms and the abuse of individual eels.

While the future of European eels remains uncertain, threats toward the eel are mirrored in other freshwater and marine species and are part of a broader context of biodiversity decline and species extinction. We reaffirm Lynch and colleagues' (2013) assertion that "capitalism's unending desire to accumulate and its ecologically destructive forces are serious crimes" and hope that our framing of harm through direct and indirect drivers encourages criminological, governmental and societal attention to focus beyond direct and visible harms to the socially condoned and business-as-usual processes that continue largely unchallenged (p. 1009). National and international policies and conservation plans sit within an anthropocentric and typically development-driven landscape. These norms must be challenged to break down conceptual and cultural barriers that prioritise short-term and politically palatable solutions, and prevent holistic and justice-orientated responses to networks of harmful practices.

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[1] IUCN: The International Union of the Conservation of Nature's Red List of Threatened Species provides a global database of species and their conservation status.
[2] CITES: The Convention on International Trade in Endangered Species of Wild Fauna and Flora. The European eel was listed on Appendix II of the Convention in 2007 (CoP14 Prop. 18 https://cites.org/sites/default/files/eng/cop/14/prop/E14-P18.pdf). This requires all international trade to be accompanied by an export permit; permits should only be granted when the national scientific authority of the exporting state can advise that export is not detrimental to the survival of the species.
[3] European States are bound by a unilateral EU trade ban (Scientific Review Group 2010). This prohibits the export of European eels from the European Union as well as the import of European eels into the European Union.
[4] See footnotes 2 and 3.

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