

# BIOSEC

BIODIVERSITY AND SECURITY

## Final Report



# Executive Summary

The BIOSEC Project examined the integration of biodiversity conservation and security. It built on and further developed the field of political ecology by critically interrogating the ways in which illegal wildlife trade (IWT) has become increasingly framed as a security threat – as a wildlife crime perpetrated by organised crime and armed groups. Our research interrogated and challenged these assumptions by developing novel intellectual approaches centred on political ecology of security, geopolitical ecologies and post human ecologies. Crucially research by the BIOSEC Project cast light on the harms arising from framing IWT as a wildlife crime and as a security issue for both people and wildlife; highlighted the importance of overlooked trades in European wildlife; placed the use of surveillance technology in its social context; and drew out the on-going legacies of colonialism and racism in some current conservation practices.

## The BIOSEC Project

The BIOSEC Project successfully met, and in several aspects exceeded, the key objectives. The team developed intellectual and methodological innovations to redefine thinking about political ecology, security and illegal wildlife trade. The core aim of the project was to define a new field of research in the illegal wildlife trade, by examining whether concerns about protecting biodiversity and security are becoming integrated, and if so in what ways.

The ERC evaluated the project very positively as a ‘success story’:

*“Your project was very successful and interesting, so it is great news that further funding could be obtained to continue the very important research. We are very pleased to hear that ERC has helped in developing careers of young researchers. I would like to congratulate you and your team for the results achieved with your project. In particular, the dissemination results is excellent with an impressive number of events organised and a clear attention to reach stakeholders and a wider audience.”*

## The Team

### **Principal Investigator:**

*Professor Rosaleen Duffy*

### **Project Managers:**

*Ruth Wilson and Lucy Dunning*

### **PhD Students:**

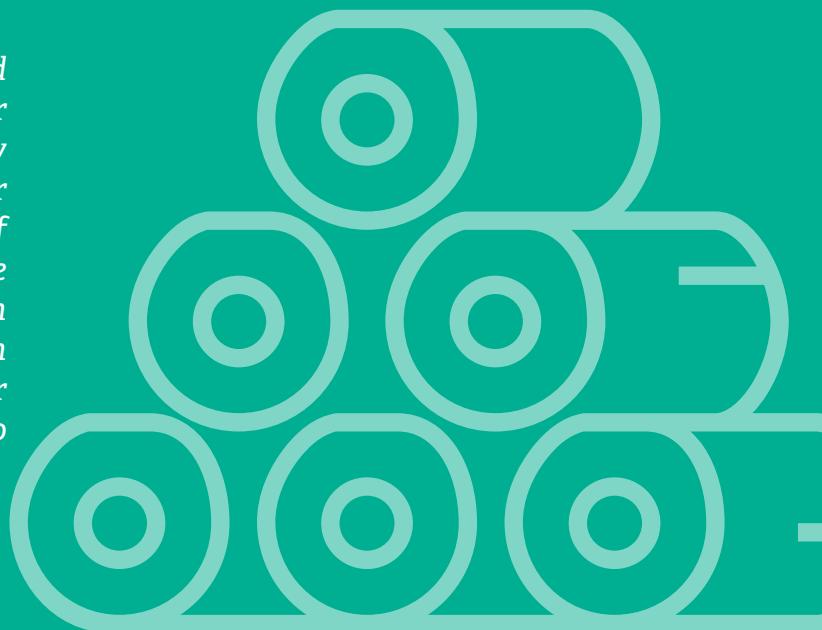
*Hannah Dickinson, Laure Joanny*

### **Post Doctoral Researchers:**

*Anh Vu, Jared Margulies, George Iordăchescu, Teresa Lappe-Osthege, Francis Massé, Sarah Bezan*

### **More information**

<https://biosec.group.shef.ac.uk/the-team/>



# Brief Summaries of Key Findings

**The Project was divided into Work Packages:**

## ***WP1 & WP6 Prof Rosaleen Duffy – Political Ecology of Security***

WP1 focused on the international politics of illegal wildlife trade, and the response of donors, international organisations, and international conservation NGOs. This empirical focus allowed the development of a political ecology of security approach. In brief this examines the intersections between capitalism, security and nature, in order to understand how nature is being reconfigured in service of the global security industry. The integration of conservation and security drives particular forms of conservation on the ground, with material (often violent) consequences for wildlife and for people. Further, the integration of conservation and security is fundamentally restructuring relationships between the human and non human worlds; it is changing the interactions between people, between people and the environment, and between animals and the ecosystems they inhabit. Finally, WP6 ran during the final 12 months of the project to draw together the cross cutting themes of the different WPs; more detail is provided in the next section.

## ***WP2 Dr Hannah Dickinson – Geopolitical Ecologies and the Caviar Trade***

This WP analysed the characteristics of illegal caviar trade in the European Union and how these characteristics have been shaped by multi-scalar efforts to combat sturgeon poaching and caviar trafficking in the region. It was conducted using a multi-sited 'follow-the-policy' methodology, which traced the movement and implementation of caviar trade policies across 6 EU Member States, in order to analyse the myriad impacts of the regulatory frameworks. Key findings indicated that the EU caviar trade regulations have gaps and grey areas, which produce unintended geopolitical-ecological consequences that extend beyond dynamics of illegal caviar trade.

The regulatory grey areas include: omissions in legislative content; law enforcement gaps; and ambiguities in the policy narratives that sustain the regulatory frameworks. As such, the caviar trade regulations and their gaps have implications not only for illegal caviar trade dynamics, but for broader EU geopolitics, security and political ecologies. The research also positioned caviar and sturgeon as unlikely geopolitical actors, and makes the case for developing a novel 'more-than-human geopolitical ecology' approach, which foregrounds the role of nonhumans in co-producing geopolitical-ecologies alongside human actors.

## ***WP3 Dr Laure Joanny - Technologies for tackling IWT***

The research followed data collection and analysis systems from their design and promotion to some of the protected areas and wildlife conservation authority offices where they are deployed on Sumatra, Indonesia. The research highlighted protected areas and wildlife authorities adapt to accommodate for data collection, entry and analysis, as well as acting on the information acquired. The research nuanced the public discourse of NGOs and companies promoting these systems, which emphasise the ways these tools speed up and facilitate the work of conservation agents. These technologies are not only used to detect and record activities that threaten wildlife but also to monitor and evaluate the work of field wildlife enforcement staff. This can cause resistance against the monitoring systems. Finally, monitoring technologies are mobilised in support of understanding of activities threatening local wildlife as crime. This crime framing, and the information collected, through monitoring technology contributes to conservation strategies inspired by policing, military and intelligence.

## ***WP4 Dr Francis Massé – Conservation Law Enforcement***

This WP critically examined conservation law enforcement as a response to increases in the scope and seriousness of wildlife



trafficking, and with what effects. The research used a multi-scalar political ecology approach to examine how conservation law enforcement materialises on-the-ground in the rhino poaching hotspot of Mozambique/South Africa, while also focusing on how these intersect with global meta-level trends to combat wildlife trafficking. This multi-scalar and multi-sited approach enabled an understanding of developments across the enforcement chain from source to consumption. Key findings from the research include the development a feminist political ecology of wildlife crime to understand the embodied and gendered dynamics of the rhino poaching conflict in the Mozambique-South Africa borderlands. Scaling up, it furthers geopolitical ecology to examine global trends in international funding to support conservation and combat wildlife trafficking. This latter work highlights how international conservation and development assistance to biodiversity conservation is increasingly allocated to law enforcement approaches to poaching and wildlife trafficking, at the expense of other conservation priorities.

#### ***WP5 Dr Jared Margulies – Consumption and the Trade in Cacti and Succulents***

WP5 focused on the consumption of wildlife products through a study of global illicit trade in cactus and succulent plant species. It was a multi-sited, multispecies study of illicit succulent life from source to consumption, attentive to the global circulation of species and their transformation into illicitly traded commodities. The major research output is a book tentatively entitled *The Succulent Subject: a political ecology of plants, desire, and illicit trade*. Key findings from this research include 1) the heterogeneity of succulent trades, involving different types of actors and networks; 2) the importance of the internet and social media platforms for facilitating illicit succulent trade; 3) the importance of attention to motivations by passionate plant collectors, many of whom rationalize illicit behaviour as ethically acceptable, compared to many illicit trades that are pursued simply for financial gain; 4) how small numbers of people involved in the illicit trade are nevertheless able to cause

significant damage to species populations, furthering the risk of endangered succulent plant extinctions; and 5) the importance of North American and Europe as major hubs and consumer destinations for illegally traded succulent plant species.

#### ***WP7 Dr Teresa Lappe-Osthege - Demand and Supply of Songbirds in Europe***

WP7 interrogated the socio-political and regulative dynamics driving the demand and supply of the illicit wildlife trade in Europe by examining the illegal bird trade from the Western Balkans into the European Union (EU). The research was informed by current debates in political ecology, environmental politics, and EU environmental governance, and demonstrated that the European dimension of the illegal wildlife trade (IWT) has been widely overlooked in current policy approaches. The three key findings with direct implications for policy were: 1) less charismatic and native European species (such as songbirds) are often overlooked in current policy responses to IWT in Europe; 2) policies tend to focus on source communities in third countries to curb supply, but disregard the role of the European consumer as a key driver of demand; 3) EU legislation itself plays a key role in enabling demand and supply patterns of the illegal bird trade from the Western Balkans into the EU as it creates loopholes and inconsistencies through derogations and exemptions. This results in a highly complex legal context, which undermines consistent and comprehensive enforcement of legislation across the EU.

#### ***WP8 Dr George Iordăchescu – Securitisation and Criminalisation of the timber trade in Romania***

WP8 investigated the impact of EU regulations related to timber trade on the securitization and criminalization of illegal logging in the Carpathian Mountains, Romania. The pressures from the demand side to halt trade in illegally sourced timber within the common market translated into a set of radical measures adopted by national authorities. First, deforestation and illegal logging were listed as a national security threat similar to terrorism

and economic sabotage. Second, criminal enforcement and prosecution of forest law violations became normalized, including cases of petty theft and other violations previously treated as minor infractions. Third, the authorities deputized the general public to monitor and report cases of forest crime and made a range of technologies available to civil society. The implication of this turn toward securitization and criminalization are manifold: forestry professionals were indiscriminately considered corrupt; many local timber industries collapsed allowing multinational companies to dominate the market; timber shortages affected the livelihoods of rural communities making them more vulnerable; the populist mobilization of anti-logging discourses blurred the boundaries between legality and illegality. Despite tightening legal frameworks and addressing illegal logging as a security threat, few cases of forest law violation have been prosecuted as serious crimes. Various grey markets developed across the forestry sector, as both household and industry's demand for timber outstrips supply.

**WP9 Dr Anh Vu Environmental Activism and IWT in Vietnam**

WP9 developed innovative ideas around environmental activism in authoritarian contexts particularly in Vietnam. In particular, it combined the lenses of environmental politics and political ecology to examine the dynamics and intricacies of varieties of environmentalism as well as the role of culture, religion and customary management institutions in IWT demand reduction in Vietnam, one of the world's biodiversity hotspots. IWT has become a booming business in the region for over fifteen years. In recent years, international funding has been poured into a wide range of consumer-targeted interventions in Vietnam in order to alter behaviour and reduce demand for IWT products. However, these campaigns are ill-suited to the Vietnamese context. Through examining environmentalism around the IWT demand reduction, the research revealed how biodiversity conservation is the sphere where state-building, transnational power

and local struggles intersect and collide with one another. It also demonstrated that local people have higher propensity towards valuing native species more than non-native ones, even though the latter may have less survival chances.

**WP10 Dr Sarah Bezan – Animal Politics, COVID19 and IWT**

WP10 emerged in response to the debates in 2020 about IWT as a possible source of COVID-19. It focused on developing literature reviews and historical archives research to explore the relationship between COVID-19 and the illegal wildlife trade, examining emerging areas of research related to biodiversity conservation (decolonial/Indigenous knowledge frameworks and compassionate conservation methodologies), human-animal studies (conceptions of solidarity, animal labour/conflict), political ecology (animal geographies, more-than-human/multispecies worlds), and One Health (inter-related approaches to human, animal, and environmental health). It illuminated the historical relationship between the illegal wildlife trade and zoonotic disease is not a “new” or “novel” emergence but the result of centuries of extractivism, colonial expansion, and animal commodification.

## Cross Cutting Research Themes

We developed a series of cross cutting themes. You can read summaries and watch the videos related to these on <https://biosec.group.shef.ac.uk/our-research/>

### **1. Political Ecologies of Security and Wildlife Crime (Duffy WP1, Massé WP4, Joanny WP3, Lappe-Osthege, WP7 and Iordăchescu WP8)**

This was a core theoretical aspect of the project; we built on the existing debates in political ecology, interventionism, green criminology and environmental security to develop the central concept of a political ecology of security. The team synthesised literatures from securitisation theory, political ecology, militarisation, green criminology, surveillance studies, critical geopolitics, conservation law enforcement and environmental peacebuilding to rethink the meanings of security and wildlife crime. This allowed us to analyse specific manifestations, challenges and failures of security approaches to illegal wildlife trade and wildlife crime. These included surveillance technologies for enforcement in Indonesia and Romania (Joanny WP3, Iordăchescu WP8), anti poaching in Mozambique and South Africa (Massé WP4), songbird hunting in the Western Balkans (Lappe-Osthege WP7), as well as donor and NGO engagement (Duffy WP1, Massé WP4).

### **2. Geopolitical Ecology (Dickinson WP2, Massé WP4, Margulies WP5, Vu WP9 and Iordăchescu WP8)**

This exciting intellectual intervention developed organically from the original project proposal. Existing 'Geopolitical Ecology' scholarship takes a narrow view of 'Geopolitics' that emphasises military and state-based politics; however Dickinson (WP 2) innovatively integrated this with 'more-than-human' thinking to redefine sturgeon as geopolitical subjects, with the capacity to shape, alter and disrupt geopolitical realities. Massé (WP 4) and Margulies (WP 5) also developed the idea by compiling a database on the geopolitics of conservation funding for tackling the illegal wildlife trade (see information on USFWS project in the section on methodologies. Vu

(WP9) developed ideas around environmental activism in authoritarian contexts, particularly in Vietnam; her work reveals how biodiversity conservation is the sphere where state-building, transnational power and local struggles intersect and collide with one another. Iordăchescu (WP8) developed a conceptualisation of geopolitical ecology of wilderness protection in the EU as a process of unequal ecological exchange.

### **3. Linking the Whole Chain of Demand and Supply (Dickinson WP2, Margulies WP 5, Lappe-Osthege WP7, Vu WP9)**

The research team disaggregated the singular and blunt categorisations of demand and supply. This is particularly important in four areas: cacti and succulent trade (Margulies WP 5), demand reduction programmes (Vu WP9), the caviar trade (Dickinson WP2) and the songbird trade (Lappe-Osthege WP7). Sites of production and consumption can be coterminous – this presents policy makers with a challenge if they design interventions to tackle the illegal wildlife trade which unhelpfully target supply/source countries only or if demand reduction strategies focus on places and communities where wildlife consumption is high. We also developed an important strand of work drawing on critical race studies to explore the ways that NGO demand reduction campaigns intersect with colonialism and racism (Vu WP9, Margulies, WP5, Duffy WP6).

One of the areas of distinctiveness in the BIOSEC project was to cast light on 'unloved' or semi-charismatic species including sturgeon (Dickinson WP 2), songbirds (Lappe-Osthege, WP7), and cacti (Margulies, WP 5). This aspect of the research led to a successful application to the UK ESRC for £1 million grant, Beastly Business, on IWT in European species and green collar crime (Duffy, Dickinson, Lappe-Osthege and Iordăchescu) which runs 2021-2023.



## Novel Methodologies

The BIOSEC team combined appropriate existing methods, with novel and unconventional methods to undertake the research.

**Post-human methods:** Margulies (WP5) developed novel post-human research methods, which engage with de-centering humans as the primary subjects of social research; he developed a global multispecies ethnography for his work on the illegal trade in rare plants, paying attention to how plants themselves play important roles in the development of the politics of controlling the trade. Bezan (WP10) also contributed to the development of post-human approaches by bringing political ecology into conversation with key literatures in arts and humanities to generate reviews of the intersections between COVID-19, IWT and conservation.

**Follow the policy:** Dickinson (WP2) utilised a 'Follow-the-Policy' methodology which entails multi-sited research that attempts to follow and understand the paths carved by policies as they move between sites of policy creation and implementation. She adapted 'follow-the-policy' methods from their typical focus on economic policies and applied them to EU environmental policy on caviar trade. She followed people, materials, meetings and sturgeon; and developed her own contribution to the methodology, by choosing to 'follow-the-gaps' in policies.

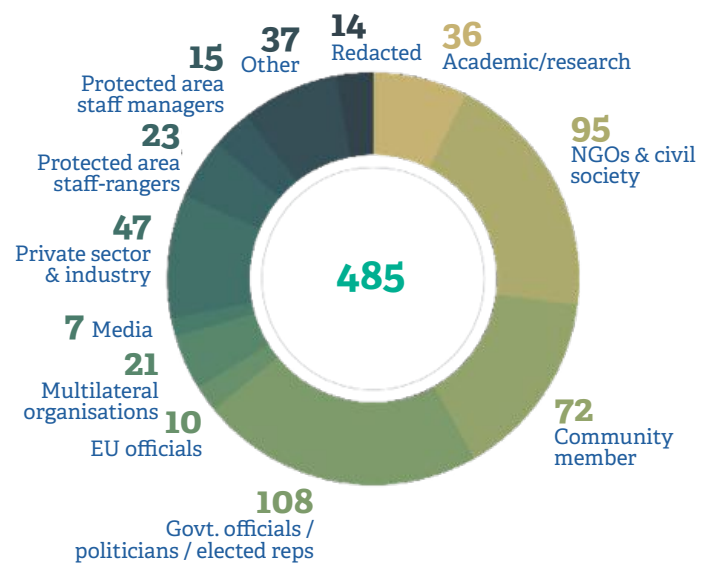
**Ethnographies of technology:** Joanny (WP3) used in-depth ethnographic methods to shed light on the rationale for and the practical implementation of surveillance technologies for conservation. This was inspired by emerging critical literature on data and algorithms, but is an innovative departure from the existing quantitative assessments of adoption rates or analyses of the efficiency of threat detection by new technology.

**Follow the money and quantitative methods:** Massé (WP4) and Margulies (WP5) followed the flows of official development assistance to examine how they support efforts to combat

wildlife trafficking. This involved quantitative and qualitative analysis of conservation and development funding. They analysed 3821 US Fish and Wildlife Service projects to understand where money to tackle IWT is going, to whom, what types of activities this money supports, and how this has changed over time and space.

The original aim was to undertake 210 interviews, 6 knowledge exchange workshops, 600 questionnaire responses, participant observation notes. In total, the team developed a funding database, organised 19 knowledge exchange workshops, helped organise 2 conferences, and participated in 18 further workshops. The team completed 485 interviews (plus 12 redacted interviews). Below this is broken down by category:

### BIOSEC interview categories



## Knowledge Transfer

Dissemination and Knowledge Exchange were central from the outset. Wilson and Dunning (Project Managers) designed and successfully implemented a communications strategy.

**Academic Outputs:** The team devised a publication strategy that focused on publishing academic articles in leading and widely read journals such as Political Geography, World Development, Biological Conservation and Annals of the Association of American Geographers.

See full list of our publications: <https://biosec.group.shef.ac.uk/research/>

**Knowledge Exchange events:** In order to disseminate our research findings to International Organisations, Donors and Conservation NGOs, the team organised 19 Knowledge Exchange Workshops, with organisations such as the World Bank, USFWS, WWF-International and the European Parliament. The team co-organised a major event, held at Zoological Society of London in October 2018 to tie in to the high level international Conference on the Illegal Wildlife Trade. It was attended by 250 leading academics and representatives of conservation organisations.

**Popular media:** The team wrote a total of 48 blogs and essays in popular media outlets which extended our reach to a wider public audience. We were interviewed for a range of radio programmes, newspapers and magazines.





## BIOSEC Resources

**BIOSEC Policy Briefs:** The team wrote eight bespoke policy briefs outlining the key findings for each work package. These were disseminated electronically and copies were sent to specific individuals in key organisations. These can be accessed here

<https://biosec.group.shef.ac.uk/2020/08/24/news-biosec-policy-briefs/>

**BIOSEC Films:** We designed themed videos about the six research themes (militarisation of conservation, defining wildlife crime, technologies, laws and loopholes, commodification and consumption, European trades). They can be accessed here <https://biosec.group.shef.ac.uk/2020/09/01/biosec-videos/>

**BIOSEC Zine:** Our team produced a zine, which can be accessed here

<https://biosec.group.shef.ac.uk/2020/08/26/zine-biosec-notes-on-illegal-wildlife-trade/>

**BIOSEC and Bubbles Podcasts:** Joanny (WP3) developed and recorded 5 podcasts on cross cutting themes, which can be accessed here <https://biosec.group.shef.ac.uk/2020/08/20/biosec-bubbles-full-podcast-series-out-now/>

**Academic Papers:** We continue to produce academic articles and conference papers. See a full list of publications here:

<https://biosec.group.shef.ac.uk/research/>

**BIOSEC Fellows Programme:** The core team was enhanced by the appointment of associated post doctoral fellows funded by other sources. These were: Dr Elaine (Lan Yin) Hsiao, Dr Esther Marijnen, Dr Brock Bersaglio, Dr Adeniyi Asiyanbi and Dr Judith Verweijen. More information on the fellows is here <https://biosec.group.shef.ac.uk/the-team/>

**Visiting Researcher Programme:** The BIOSEC Project was enhanced by the ability to fund short visits by scholars engaged in researching illegal wildlife trade and environmental geopolitics. Dr Annette Hübschle (University of Cape Town), Dr Anwasha Dutta (Chr Michelsen Institute), Dr Nitin Rai (ATREE),

Dr Tekle Weldemichel (Norwegian University of Science and Technology), Peter Coals, Vivienne Williams and Tim Kuiper (University of Oxford), Dr Ben Neimark (Lancaster University), and Professor Shannon O’Lear (University of Kansas) gave seminars on the research and undertook research ‘horizon scans’ to develop ideas for future funding applications. Further visits were planned by Dr Ivan Ashaba (University of Antwerp), Dr Rebecca Wong (University of Hong Kong), Prof Maano Ramutsindela (University of Cape Town), and Prof Geoff Dabelko (University of Ohio) but were unfortunately cancelled as a result of the COVID pandemic.

## Career Development

The BIOSEC Project used a collaborative management model, and team members were fully involved in all aspects of the project which enhanced skills in knowledge exchange and communication, academic publishing, setting milestones and forward planning to meet objectives. After the end of the project all team members went on to secure new positions. More information is on: <https://biosec.group.shef.ac.uk/2021/07/22/team-biosec-where-are-they-now/>

**Advisory Board:** The advisory board provided invaluable advice and met four times during the life of the project. Several collaborations arose from our interactions including a high profile event and a large grant. The Board were: Sabri Zain (TRAFFIC International), Prof Maano Ramutsindela (University of Cape Town), Prof Elizabeth Lunstrum (Boise State University), Prof Dan Brockington (Sheffield University), Prof Bram Büscher (Wageningen University), Prof EJ Milner-Gulland (Oxford University), Dr Dilys Roe (International Institute for Environment and Development), Prof Tor Benjaminsen (Norwegian University of the Life Sciences), More information is here <https://biosec.group.shef.ac.uk/the-team/>



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### **About the BIOSEC Project**

The BIOSEC Project was funded by the European Research Council (ERC) 2016-2020. More information on our outputs, our team and our research is on our website.

### **For more information:**

<https://biosec.group.shef.ac.uk>  
[Twitter @biosec\\_erc](https://twitter.com/biosec_erc)