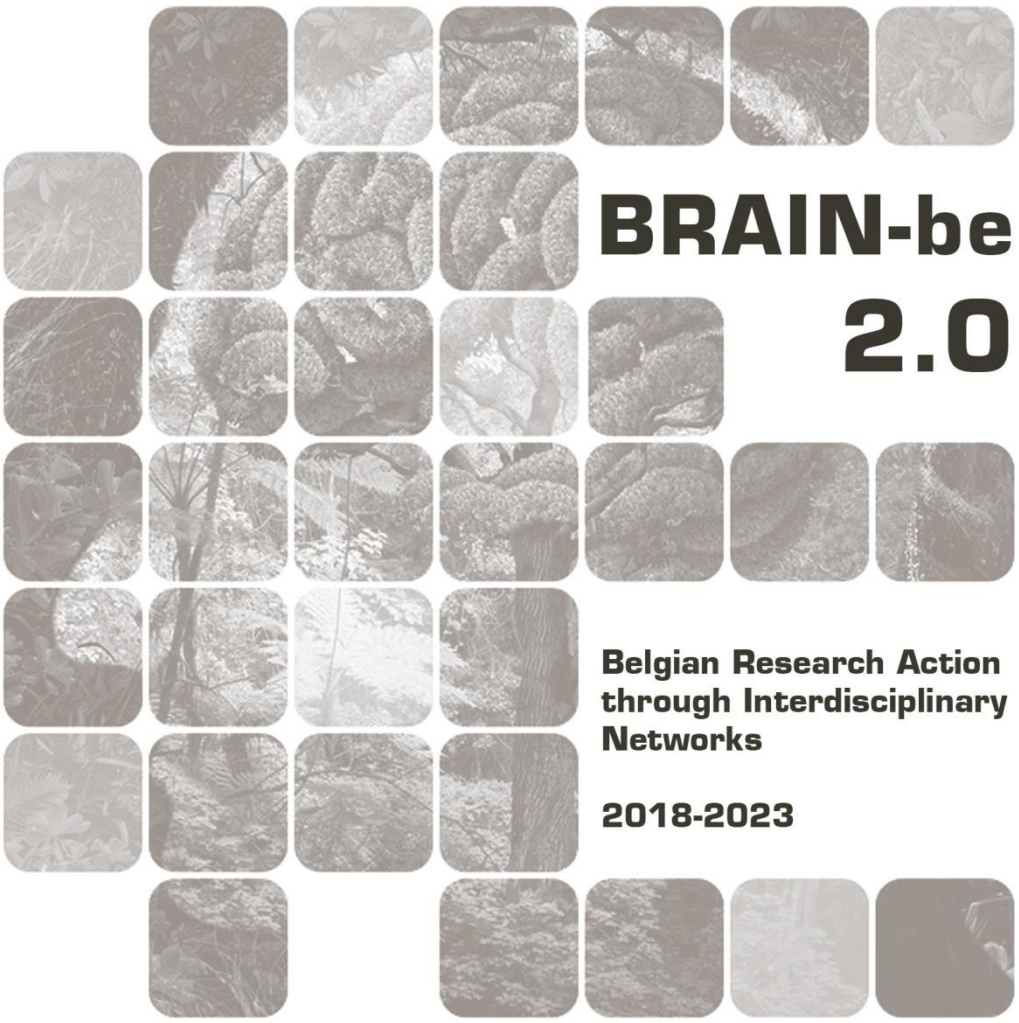

CRIMBIODIV

Criminal behaviour against biodiversity

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Pillar 1: Challenges and knowledge of the living and non-living world

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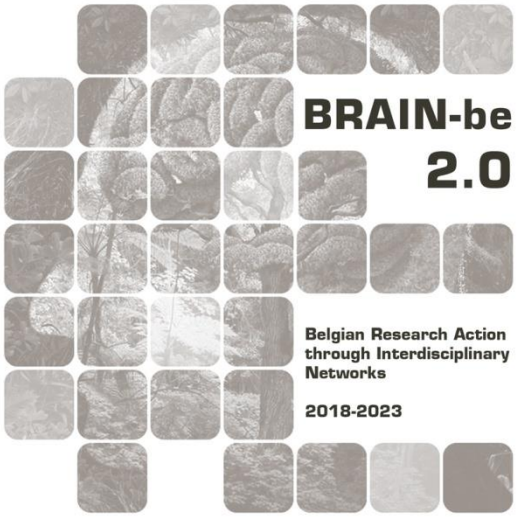

NETWORK PROJECT

CRIMBIODIV

Criminal behaviour against biodiversity

Contract - B2/202/P1/CRIMBIODIV

FINAL REPORT

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ABSTRACT

Context

CRIM-BIODIV research aimed to understand what happens when conflicts arise from this cohabitation, using diversified approaches from both the social sciences (criminology in particular, but also law, sociology, etc.) and the life sciences (especially biology). The context of the project is now well known: biodiversity is under attack on several fronts in Belgium as elsewhere, with consequences that, as yet, are only partially anticipated. At the same time, we have to regret the absence of a coordinated criminal policy at all levels of power involved. This weakness in terms of criminal policy is mainly due to the complexity of the federal state's institutional landscape and a fragmentation of environmental powers between the federal and regional levels. But the environment just keeps rolling on, no matter who's in charge… The health crisis, combined with climate change, has recently highlighted a significant number of major environmental and social issues such as the vital need for natural spaces and urban vegetation, the territorial occupation of these areas and their unequal distribution, the need to keep citizens informed about protection of biodiversity and the actions they can take to ensure this protection, the postures of adherence and resistance to the norms, the welfare of domestic animals, the latitude available to the actors in charge of controlling and punishing infringements and their possible concerns about the type of sanctions to adopt.

We have focused on a study of different cases, a set of 'problem situations' in which an (alleged or proven) harm to biodiversity has led to a questioning or an (in)action on the part of one or several individuals, acting as citizen(s) or as representative(s) of a public authority or environmental associations, experts and so on. The case study enables an in-depth analysis of diverse present or past situations in their particular context. This perspective, which is extremely comprehensive and totally inductive, is stimulating for CRIM-BIODIV research, in virtue of its interest in the management of harm to biodiversity. Thus, in line with a criminology of social reaction, the CRIM-BIODIV project does not ask why and how human beings (or, by extension, society) destroy the environmental balance, but rather how they react to this (possible / supposed) destruction. In other words, the fifteen case studies analysed in this research provide an insight into what the perception of damage to biodiversity makes people and institutions do. May this report contribute to better protection of biodiversity through a deeper understanding of the effects of individual and collective human perceptions and actions on the living world.

Objectives

The CRIM-BIODIV project pursues the general objective of joint construction of knowledge in order to develop, on the one hand criminological expertise in penal protection of biodiversity, and on the other an interdisciplinary dialogue aiming to halt the loss (or collapse) of biodiversity. This will be done via a unique alliance between researchers in human sciences and researchers in life sciences.

Three operational objectives were also pursued by favouring a relational and micro-social approach to biodiversity damage. Firstly, it intends to identify the drivers and levers of individual, citizen,

association and professional action in relation to environmental norms protecting biodiversity. Secondly, it aims to increase knowledge on the social representations of environmental rules protecting biodiversity, of deviations from these norms and of the social reaction to these deviations. Lastly, the project aims to identify the methods that can be mobilised to encourage behavioural changes to protect biodiversity.

Placing individual action at the heart of a scientific project resonates with the current context in which heightened attention to the environment and biodiversity is expressed in two types of individual evolution: adopting more environment-friendly lifestyles and a commitment to protest actions when the environment is under threat. Thanks to these attitudes, it has gradually become legitimate to see harm to biodiversity as a society problem. Yet, which modes of individual action can enter into play alongside criminal law measures to protect the environment and also around administrative sanctions put in place to compensate for what is missing in the penal realm? Sociological studies of judicial work show that technical capacities are required for the success of legal cases in the area of the environment; another need is strategic alliances between nature protection associations and environment inspectors. These technical capacities and skills can also be acquired during the very process of protest; activist citizens thus become experts and their knowledge is recognised as legitimate. Faced by the inertia – or short-sightedness? – of legal actors (especially the police and prosecutors), some citizens (isolated but also – and increasingly – united in ad hoc groups or committees) no longer hesitate to report violations, calling for the support of environmental associations to increase the legitimacy of their action.

The CRIM-BIODIV project aimed to give a place to the tools of action and therefore it also intends to participate in the construction of useful tools to approach, understand, analyse, objectify and react to situations that harm biodiversity. This tool can be used by anyone wishing to take action: individuals as well as environmental associations and public authorities. Such a project requires exploratory work to identify real needs, followed by efforts to build the tool, experiment in the field and conduct evaluations, giving rise to possible developments in the future.

Conclusions

In addition to the development of a reaction tool for biodiversity damage, the conclusions of the empirical research are structured around four axis, which are difficult to summarise in a few words, and that emerge from an analytical cross-section of all the 15 case studies.

The first transversal axis of analysis concerns a central element of the research: the representations conveyed by the many stakeholders we met. This axis places the plural visions of damage to biodiversity in a context of action and reaction to precisely identified damage. This section covers: a. Ordinary biodiversity as an object that reveals ; b. Biodiversity harm as a public problem and a methodological issue ; c. The issues of prejudice's assessment and emergence ; and d. A (impossible?) typology of the diversity of the actors involved.

The second axis of analysis concerns cohabitation – or, in the plural, the ways of existing in relation to biodiversity. This axis is distinguished by four essential questions: a. The nature of biodiversity (and more broadly of the environment) that is defended and accepted in the different cases dealt with; b. The ways of conceiving the idea of transformation of biodiversity or the reaction that aims to defend it; c. This defence in relation to the question of environmental inequalities; finally, d. The question of the tension between privatisation and commons.

The third axis echoes one of the pillars on which the research project was based, i.e. identification of the levers of individual, citizen, association and professional action in the face of threats to biodiversity and environmental standards. These levers are analysed in terms of the types of action or reaction observed in the case studies : a. Opposition, contentious or competitive ; b. Raising awareness, prevention, nudging ; c. Human management of the impact on (non-human) life ; and, d. Reparation, compensation, repression and sanctions.

The fourth and final axis of analysis focuses on the set of mechanisms and processes that underpin the establishment of environmental standards and their efficiency : a. State of standards/administration ; b. The role of the law ; c. The differential management of biodiversity harms ; and, d. The distinction between individual and structural harms to biodiversity.

Taking an interest in the harm done to biodiversity (and the reactions they produce) requires us to navigate between the natural sciences (their technicality, rationality and scientistic aspirations) and the human sciences (taking into account human variability, their reflexivity and their involvement in the social world), oscillating between objective (dys)qualifications and subjective (dys)qualifications of the states of biodiversity. In this perspective, it seems appropriate to pursue the interdisciplinary dialogue and organise the opportunities and capacities for transdisciplinary encounters, or even to admit disciplinary transgressions or the emergence of new epistemologies outside the existing disciplinary. Thus, the meeting between two fields of science – life or human – in the framework of CRIM-BIODIV research questions disciplinary disruptions in two ways: within the same field of study, for example criminology, and in the confrontation with other ways of apprehending living, human and social realities. The consequences of these disciplinary challenges are not solely outside the ground. They involve (re)problematisations of societal orders. At a time when specialised environmental jurisdictions are being created or debates are taking place on the creation of the legal offence of ecocide, the tension inherent in the criminological discipline, in virtue of extending the notion of crime through the concept of harm (legal or illegal, intentional or not, malicious or not, etc.), raises the question of the relevance of integrating into judicial, penal and administrative reforms forms of harm that may appear to be in strict compliance with the laws in force. More generally, awareness of the environmental threat – of which the decline in biodiversity is a major issue – calls into question both the structuring of scientific knowledge and the incentives for public and citizen action.

Keywords

Biodiversity harm – Green Criminology – Nature – Environment – Repression and administrative regulation

1. INTRODUCTION

This report concerns the CRIMBIODIV project carried out between 1 April 2021 and 31 March 2023 in the framework of the research programme BRAIN-be 2.0 and, more specifically, in the framework of Pillar 1 of this programme (Challenges and knowledge of the living and non-living world) aiming to analyse the challenges of cohabitation between the living and non-living world on the same territory. Our objective was to understand what happens when conflicts arise from this cohabitation, using diversified approaches from both the social sciences (criminology in particular, but also law, sociology, etc.) and the life sciences (especially biology).

The context of the project is now well known: biodiversity is under attack on several fronts in Belgium as elsewhere, with consequences that, as yet, are only partially anticipated. Along these lines, it is worth noting that the origins of the COVID-19 pandemic are not unrelated to the decline in biodiversity (Lorentzen, Benfield, Stisen, Rahbek, 2020). At the same time, we have to regret the absence of a coordinated criminal policy at all levels of power involved (local authorities such as municipalities and provinces, federated entities such as Regions and Communities, but also the Federal State, and even the supranational level such as the European Union). This weakness in terms of criminal policy is mainly due to the complexity of the federal state's institutional landscape and a fragmentation of environmental powers between the federal and regional levels. But the environment just keeps rolling on, no matter who's in charge…

The health crisis, combined with climate change, has recently highlighted a significant number of major environmental and social issues such as the vital need for natural spaces and urban vegetation (Bocart, Guillaume, Mikolajczak, Vaucelle, 2020), the territorial occupation of these areas and their unequal distribution (Tatti, Guillain, Jonckheere, 2021), the need to keep citizens informed about protection of biodiversity and the actions they can take to ensure this protection, the postures of adherence and resistance to the norms, the welfare of domestic animals (Boekhout van Solinge, van Impe, Janssen, van Uhm, 2020), the latitude available to the actors in charge of controlling and punishing infringements and their possible concerns about the type of sanctions to adopt (administrative or criminal; preventive or repressive).

This is the context that gave birth to the research project, so as to understand what happens when biodiversity is damaged in Belgium. Entitled 'Criminal behaviour against biodiversity' (CRIM-BIODIV), this project is based on an unprecedented alliance between researchers in the human sciences at the National Institute of Criminalistics and Criminology (NICC) and researchers in the life sciences at Canopea (formerly Inter-Environment Wallonia, IEW). As a scientific institute responsible for informing criminal policy, the NICC will be able to fulfil its mission with regard to biodiversity; as a federation of environmental associations, Canopea will be able to draw the contours of effective action to protect biodiversity.

The project has a twofold objective: the construction of an interdisciplinary dialogue with a view to understanding the multiple social realities in which biodiversity conservation issues are immersed, and the development of criminological and sociological expertise on biodiversity protection.

In order to do this, we have focused on a study of different cases, a set of 'problem situations' in which an (alleged or proven) harm to biodiversity has led to a questioning or an (in)action on the part of one or several individuals, acting as citizen(s) or as representative(s) of a public authority or environmental associations, experts and so on. The case study enables an in-depth analysis of diverse present or past situations in their particular context. Without following in her direct footsteps, the research meets the project of Céline Granjou (2013) who studied the 'micropolitics of biodiversity', i.e. the management of nature protection: singular and local analyses of the perceptions, actions, interactions and reactions of nature protection actors. This perspective, which is extremely comprehensive and totally inductive, is stimulating for CRIM-BIODIV research, in virtue of its interest in the management of harm to biodiversity. Thus, in line with a criminology of social reaction, the CRIM-BIODIV project does not ask why and how human beings (or, by extension, society) destroy the environmental balance, but rather how they react to this (possible / supposed) destruction. In other words, the fifteen case studies analysed in this research provide an insight into what the perception of damage to biodiversity makes people and institutions do.

A new WWF report on the state of the world's biodiversity has just been released (WWF, 2022). It shows an average 69% decline in the relative abundance of monitored wildlife populations around the world between 1970 and 2018 (WWF, 2022, 4). Populations of freshwater species have seen the greatest overall global decline (83%). In Belgium, the report *Planète vivante. La nature en Belgique* (WWF et alii, 2020) also shows a decline in biodiversity, directly linked to our lifestyles and consumption patterns. Habitat destruction, fragmentation and pollution are the greatest threats to biodiversity in Belgium. The overexploitation of natural resources and the introduction of exotic species also have a considerable impact on biodiversity, as does climate change.

On 19 December 2022, a new global framework was adopted by the 15th Conference of Parties to the UN Convention on Biological Diversity (CBD COP 15) to address the biodiversity crisis. The ambitious objective of reversing the loss of biodiversity, by protecting 30% of terrestrial and aquatic milieus, is set for 2030. This international consensus obviously has national implications, which Natagora summarises as follows: ''Belgium must reduce the impact of its consumption and production on global biodiversity'' (Natagora, 2022, our translation).

May this report contribute to better protection of biodiversity through a deeper understanding of the effects of individual and collective human perceptions and actions on the living world.

2. STATE OF THE ART AND OBJECTIVES

The second part of the report starts by defining the scientific and operational objectives of the CRIM-BIODIV project (2.1.). The next section (2.2.), on the state of the art, will then present the field of green criminology by proposing a broad and operational definition of the notion of biodiversity harm. This state of the art will also be an opportunity to give the floor to the field actors we met during the exploratory phase of the research project, and also to identify their own definitions of biodiversity harm. Finally, we will conclude with a presentation on implementation of a tool for analysing action levers in the event of biodiversity damage (2.3.).

2.1. Objectives

The CRIM-BIODIV project pursues the general objective of joint construction of knowledge in order to develop, on the one hand criminological expertise in penal protection of biodiversity, and on the other an interdisciplinary dialogue aiming to halt the loss (or collapse) of biodiversity. This will be done via a unique alliance between researchers in human sciences and researchers in life sciences.

Three operational objectives were also pursued by favouring a relational and micro-social approach to biodiversity damage.

- Firstly, it intends to identify the drivers and levers of individual, citizen, association and professional action in relation to environmental norms protecting biodiversity;
- Secondly, it aims to increase knowledge on the social representations of environmental rules protecting biodiversity, of deviations from these norms and of the social reaction to these deviations;
- Lastly, the project aims to identify the methods that can be mobilised to encourage behavioural changes to protect biodiversity.

Placing individual action at the heart of a scientific project resonates with the current context in which heightened attention to the environment and biodiversity is expressed in two types of individual evolution: adopting more environment-friendly lifestyles and a commitment to protest actions when the environment is under threat (Pelenc et al., 2019). Thanks to these attitudes, it has gradually become legitimate to see harm to biodiversity as a society problem. Yet, which modes of individual action can enter into play alongside criminal law measures to protect the environment and also around administrative sanctions put in place to compensate for what is missing in the penal realm? S. Barone's sociological studies of judicial work, in France, show that technical capacities are required for the success of legal cases in the area of the environment; another need is strategic alliances between nature protection associations and environment inspectors (Barone, 2019). These technical capacities and skills can also be acquired during the very process of protest; activist citizens thus become experts and their knowledge is recognised as legitimate (Sébastien, Milanesi and Pelenc,

2019). Faced by the inertia – or short-sightedness? (Woolf 1992) – of legal actors (especially the police and prosecutors), some citizens (isolated but also – and increasingly – united in ad hoc groups or committees) no longer hesitate to report violations, calling for the support of environmental associations to increase the legitimacy of their action.

The CRIM-BIODIV project aimed to give a place to the tools of action and therefore it also intends to participate in the construction of useful tools to approach, understand, analyse, objectify and react to situations that harm biodiversity. This tool can be used by anyone wishing to take action: individuals as well as environmental associations and public authorities. Such a project requires exploratory work to identify real needs, followed by efforts to build the tool, experiment in the field and conduct evaluations, giving rise to possible developments in the future.

2.2. State of the art

This state of the art section begins with an analysis of environmental criminology, which raises two questions: how this field of study has considered the notion of harm (2.2.1) and how we have chosen to define our own field of investigation, i.e. biodiversity harm, based on considerations of green criminology (2.2.2). Next, we will report on an exploratory phase that consisted of interviewing the main key actors (judiciary, associations, civilians, etc.) and asking them what the notion of biodiversity damage means to them.

*

Every research project begins with a state of the art, which, in the framework of an inductive approach, provides a relevant 'toolbox' for the field investigation. In this case, this state of knowledge is all the more important as the CRIM-BIODIV project is rooted in existing knowledge from various scientific disciplines. However, practical expertise based on a certain familiarity with the field of investigation is also essential for the successful implementation of the project. While exploratory interviews and focus groups with key actors on the ground and privileged observers made it possible to establish the selection criteria for the cases studied in this research, the literature review made it possible to discuss a common understanding of the vocabulary used – green criminology? Environmental crime? Damage? Biodiversity? – and the boundaries of the field of study.

The first stage of the literature review consisted in deciphering the field of environmental criminology, which is mainly occupied by a handful of very active English-speaking researchers: Michael Lynch, Nigel South, Avi Brisman, Pierce Beirne, Paul Stretesky, Rob White, Diane Heckenberg, etc. Based on recent manuals on green criminology (for example, the *Routledge International Handbook of Green Criminology* edited by N. South and A. Brisman, or *Green Criminology: An Introduction to the Study of Environmental Harm* by R. White and D. Heckenberg), the exercise, at first glance, could seem simple. Yet, this is without considering two fissures in this young and specific field of study. Firstly, behind an apparent homogeneity that can certainly be explained by the quest for recognition of this recent field

of research, there are lively debates between legalists and supporters of an extensive definition of environmental harm, between a critical ethical perspective and a foundation of legal pragmatism. Secondly, although the pioneering authors and most fervent defenders of environmental criminology are easily identifiable and extremely productive, their almost monopolistic presence masks the more humble studies and efforts to integrate environmental damage as objects of existing disciplines (urban ecology, critical political sociology, political economy, environmental anthropology, etc.). Thus, there is a fragmentation of peripheral studies related to (criminal) environmental damage, but not necessarily claiming to be part of the green criminology movement.

Once the field of environmental criminology had been defined, the literature review continued with an analysis of how this field of research defines the concept of 'biodiversity'; how does green criminology deal with this notion? Without anticipating the rest of the document, a certain poverty appears in the answer to this question; the term 'biodiversity' is applied to a discourse of environmental protection, without any real added value, in a form of modernisation of the discourse. It is therefore necessary to look to the environmental sciences or the socio-anthropology of nature to define biodiversity more precisely and the etymological characteristics of this recent term, which appeared in 1986 and was made famous at the Earth Summit in Rio (1992).

This first state of the art in two phases – comprehensive description of green criminology; uses and definition of the concept of biodiversity – resulted in a proposal for an operational definition of 'biodiversity', or rather 'biodiversity harm', for the CRIM-BIODIV project. This definition – to be found in the text below – is above all operational in the sense that it enabled us to define what is or is not a damage to biodiversity, and thus to circumscribe the limits of the CRIM-BIODIV research.

At the same time, the literature review made it possible to compile articles targeting 'biodiversity harms' in order to understand the types of case studies present in the field of green criminology and the ways of investigating them: types of environmental damage covered (trafficking, poaching, pollution, industrial or housing development, overproduction, waste management, etc.) and blind spots; methodologies used; specific issues. The idea was to identify spheres of intervention or fields of action that could constitute as many interesting cases that correspond to the strict circumscription of the notion of ('harm to) biodiversity', to draw inspiration from them or to distance ourselves from them.

2.2.1. Attempting to circumscribe the notion of 'biodiversity harm'?

> *'Negligence, violations and crimes for which corporations and states are responsible have led to great increases in pollution-related health harms as well as threats to the very sustainability of the planet, and that criminology should take these issues more seriously' (South, 1998, 444).*

Green criminology?

From the 1970s, ecological worries penetrated massively into the public sphere: the multiplication and publicization of natural disasters, the massive development of climatology, the birth of militant and political ecological movements, the premises of environmental law, etc. The social sciences quickly embraced the ecological issue, first within existing disciplinary branches (political science, sociology of risk, sociology of health, etc.), then by gradually organising themselves as a specific field of study (Mucchielli, Salle, 2019). Criminology – or the sociology of deviance – took a later interest in the issue (1990s), rather in the tradition of a critical criminology of capitalism coupled with the emerging notion of 'environmental justice' (Fol, Pflieger, 2010; Lejeune, 2015). Thus, green criminology was born, under the impetus of Michael J. Lynch (1990), and spread rapidly in the Anglo-Saxon academic world (Bottoms, 1994; South, 1998; South and Brisman, 2013; White and Heckenberg, 2014; Hall *et al.*, 2016; Palidda *et al*., 2016). Without going back over the specificities of each, several orientations have been emerging, from radical green criminology (Lynch and Stretesky, 2003, 2013) to anti-speciesist criminology (Beirne, 2009; Sollund, 2013) via eco-global criminology (White, 2011), conservation criminology (Gibbs, Gore, McGarell and Rivers, 2010) or environmental cultural criminology (Brisman and South, 2014).

At the risk of proposing an unsatisfactory translation because it is too literal, we will refer indiscriminately to 'green criminology' (even if Mark Halsey's critique deserves attention: see box) and 'environmental criminology', whose founding basis can be summed up in three empirical observations (Salle, 2019): the frequency of crimes against the environment, despite their underestimation; the seriousness and extent of the consequences (direct and indirect) of these crimes[1]; and the relatively limited punishment for these crimes[2].

[1] For a study on perception of the severity of environmental damage (which varies according to demographic characteristics), see: Shelley *et al.*, 2011.
[2] For a Belgian perspective, see: Billiet, Rousseau (2014).

Critique of the green

Mark Halsey's (2004) critique of the term 'green' emphasises the artificial distinction it makes between society and nature. Arguing that environmental criminologists systematically draw, explicitly or not, on the major critical ecological currents – liberal ecology, eco-Marxism, eco-feminism, radical ecology or social ecology – green criminology would reproduce the modern binary perspective of separating human action and the natural environment. This distinction would be all the more problematic when dealing with environmental damage. Thus, 'green criminologists does not possess the lexicon required to move beyond modernist conceptions of harm and reparation' (Halsey, 2004, 835). Consequently, the theorisation of 'environmental harms' (see below) deserves all due caution, drawing, for example, on the nuances brought by the post-structuralist perspective (Deleuze, Guattari, 1980).

Within the French-speaking literature, there is little interest in the study of environmental crime, although this has been changing over the past decade (and this remark purposefully excludes purely legal contributions), notably with the publication of several dossiers in specialised journals: 'Criminalité environnementale' in the journal *Criminologie* (vol. 49, n°2, 2016); 'Environmental crime' in the journal *Déviance et Société* (vol. 43, n°4, 2019); or 'Green criminology' in the journal *Criminological Encounters* (vol. 5, n°1, 2022). Nevertheless, an analysis by Grégory Salle (2019) shows the low investment of the human sciences in this field (sociology, political science, criminology). More broadly, the author shows the low recognition of 'environmental crime' as a noble object of study in Europe.

What environmental criminologists intend to say about the world

Due to the specific context of its advent and the theoretical perspectives of its pioneers – between rigorous scientific analysis and strong ideological commitment – environmental criminology is (very) strongly rooted in a critical, even neo-Marxist, tradition. As proof, the major publications in the field of green criminology, when they do not specifically aim at the recognition of legitimacy of the field of study, always oscillate between empirical statements and denunciation of a modern capitalist society. In particular, the authors examine the balance of power between the state and the industrial sector (Bonnaud and Martinais, 2008), the consequences of massive industrialisation (Foster and Holleman, 2012) or the destructive spiral of productivism (Stretesky et al., 2013), ecophagous capitalist logics (Lynch et al, 2013) and the dominance of mercantile interests over that of survival of the planet (South, 1998), the environmental damage associated with climate change (Agnew, 2011; White and Heckenberg, 2014), or lastly, they participate in the critique of new forms of colonialism and the reproduction of inequalities (Farget, 2016).

This inclination can be explained both by the genesis of green criminology – a call for 'environmental justice' that goes through social mobilisations before extending to the academic field (McGurty, 1997; Taylor, 2000) – and by the object itself, which unsurprisingly seems to attract researchers of a critical obedience. With regard to this assumed normative stance, Grégory Salle suggests that, within the criminological or sociological field, environmental criminology occupies a position similar to the one of green political theory within political science (Semal, 2017), which endeavours to study, in

particular, the contradiction between the political consensus around the ecological emergency and the persistent occurrence of environmental problems.

Other, no less critical, analytical paths seek to analyse the differential management of illegalisms in a new perspective (Salle, 2021), in a criminological tradition inspired by white-collar crime studies (Geis and Pontell, 2007), or attempt to establish direct links between elite crime and environmental crime (Piquero, Carmichael and Piquero, 2008).

Finally, the debate is also vigorous among jurists, particularly around recognition of the crime of ecocide (Higgins, 2012; Neyret, 2014; Cabanes, 2016). It thus appears that 'the crucial issue of qualifying certain acts or practices as "crimes" or as "offences", and not only as harm or damage, is still insufficiently examined' (Mucchielli, Salle, 2019, 471, *our translation*) – crimes and harms which will be examined in their conceptual content in the following section.

From 'crime' to 'harm'

One of the great debates in green criminology – in criminology, or sociology of deviance – surrounds the definition of 'crime', or here, more specifically, of 'environmental crime'. Although the debate is longstanding (Robert, 2005)[3], we can roughly distinguish between a formalist position – offences, infractions or crimes are qualified as such by a legal text and sanctioned by a competent authority (see, for example, Situ, Emmons, 2000) – and a broader reading that aims to study all harmful practices, whether legal or illegal (Passas, 2005).

Pursuing this second, majority current (Lynch and Stretesky, 2003; South and Beirne, 2006; White, 2008; Wolf 2011), makes it possible to move away – at least temporarily – from the notion of crime/infringement to talk about 'environmental harm'. While we will propose a definition later in the paper, the main criticism of the legalistic authors of this theoretical position should be emphasised from the outset: addressing the – broad and fuzzy – notion of 'harm' entails the burden of having to make a discriminating judgement – what is sufficiently harmful to the environment to be treated as an object of study? – and thus displaces the ideological bias in the researchers' minds – what is worthy of being considered a 'crime'?

[3] A Durkheimian reading allows us, for example, to consider environmental deviance as the result of anomie, *i.e*. the disintegration of solidarity.

Damage and risks

While the terms 'damage' or 'prejudice' are sometimes used to refer to environmental harm, a key author, Nigel South (2014), also uses the notion of 'risk', drawing on Ulrich Beck (1992). In particular, he refers to the concept of iatrogenesis, i.e. *the fact that the best intentions can lead to real damage. In our field, this means, for example, examining environmental problems as the product of the (undesirable) effects of globalisation, modernity and production. Together with another major author, Rob White, Nigel South writes: 'the implementation of public policies is then sometimes interesting from a criminological point of view, not because of what they provide for, but rather because of the consequences that flow from them and that sometimes turn out to be unintended, even paradoxical' (South, White, 2015, 20).*

Within non-legalistic green criminology, three ways of circumscribing the field of study can be distinguished (Salle, 2019) – authors sometimes use the term 'harm', sometimes the term 'crime' without referring to its legal definition. Some define crime or harm as serious prejudice to the environment (sanctionable or not) that causes avoidable damage (Lynch et al., 2017). It is therefore the (scientifically quantifiable) damage that includes or excludes a fact/act/injury from the scope of green criminology. Others focus on the definition of the actors themselves (victims, citizens, industrialists…) without referring to legal standards (Barclay and Bartel, 2015). A crime or environmental harm is therefore what is defined as such by the people concerned. Finally, those in the latter way to define the field opt for a total suspension of the definition in order to study what kind of injury(ies) will, or will not, be penalised and sanctioned (see, for example, Yeager, 1991). In any case, the notion of harm makes it possible to focus on the damage (rather than on the act itself, the person responsible for it, or the victim of the act[4]). Moreover, the term 'harm' (rather than 'crime') does not anticipate the response to it.

Consequently, use of broad terms related to harm (damage, degradation, injury, after-effects, depletion, destruction, alteration, deterioration, impairment, spoilage, etc.) has several epistemological advantages for a bottom-up empirical approach: a certain suspension of definition (the researcher does not a priori qualify a harm as overfishing, poaching, use of prohibited products or illegal exploitation) in order to focus on how the actors define the situation; a suspension of judgement (precisely by discarding the normative aspect surrounding the definition of the situation); and eliminating the debate on intention (an accident, voluntary destruction, negligence or an adverse consequence due to ignorance are all treated the same way).

However, such an extensive (non-)definition can quickly become augmentative: everything from oil spills caused by non-compliance with applicable standards, to poaching or pesticide use, to throwing

[4] The difficulty in giving voice to the existence and permanence of 'environmental crimes' – the conceptual core of green criminology – partly explains the late development of this stream of study and its slow legitimisation. Indeed, the discreet regulation of cases of environmental harm and the difficulty of identifying victims have, among other things, obscured the need to integrate environmental crime as a noble object of study in criminology (as well as in sociology or political science).

a cigarette butt on a pavement. If we exaggerate the example, the purchase of a plastic bottle could even be included in a broad definition of environmental damage.

As soon as the legal register is abandoned, the authors try to establish other forms of distinction. One of them, shared by a number of authors, aims to distinguish between primary damage (*i.e.* direct impacts) and secondary damage (results of exploitation, consequences of the absence of preventive action, etc.). Sometimes a more sophisticated typology of environmental damage is proposed. For example, Rob White (2008, 98-99) proposes a colour code to distinguish between types of environmental damage: green for the destruction of wild nature; brown for pollution; or white for the impact of new technologies.

In the CRIM-BIODIV project, the notion of 'harm' is linked to the concept of 'biodiversity'.

2.2.2. From green criminology to the study of biodiversity harm

> *'Biodiversity is now a keyword in any environmental discourse. After some thirty years of disseminating the term, a close examination shows that its media success has been accompanied by the weakening of its scientific validity' (Pave, 2019, 4th cover,* our translation*).*

From biological diversity to biodiversity

Biological diversity is regularly defined as the property of living beings to be dissimilar (Solbrig, 1991), or as the totality of living species and their different levels of organisation. In addition to intra-specific (genetic) diversity and inter-species (specific) diversity, the concept immediately refers to ecosystem (or ecological) diversity. It thus contributes to the stability of natural systems.

Nevertheless, the transition from the notion of 'biological diversity' – the field of expertise of naturalists – to 'biodiversity' – a much more vague concept – is far from neutral (Aubertin, Boisvert and Vivien, 1998). This thirty-year-old neologism was first coined by Edward Wilson and Walter Rosen in 1986 during a forum on biological diversity (*National Forum on Biological Diversity*, Washington, 1986). The term appeared in a context of scientific controversy surrounding, in particular, the environmental crisis, the call for sustainable development and reports of animal species extinction (Jeffries, 2005). The birth of the term 'biodiversity' marks the passing of environmental and biological diversity conservation issues into the public sphere. Going further, we could even say that the term 'biodiversity' itself – ignoring the difficulties of qualifying and quantifying biological diversity – includes the notion of 'endangering the environment' (Le Guyader, 2008): biodiversity is then closely linked, in people's minds, to protecting biodiversity.

The neologism 'biodiversity' is then marked by a massive extension of its own field of application – which explains the success and legitimacy of the term – by concerning not only the biological sciences, but also the anthropological sciences related to the relations between humans and nature (Blondel, 2012). The natural sciences describe biodiversity; philosophy recognises or attributes existence values to it independently of any instrumentalization; the social sciences are interested in the regulation of its appropriation and sharing by humans.

If, from a conceptual point of view, the notion of 'environment' refers to the milieu and its natural and/or cultural conditions, the notion of 'biodiversity' seems to integrate at least three additional ideas: multiplicity, variation and interaction, which can be seen, for example, in the idea of a 'dynamic balance' (Lévèque and Mounolou, 2008). Thus, biodiversity makes it possible to go beyond the distinction between humanity and the environment. This distinction is regularly evoked in studies emanating from the field of environmental criminology because it is interested in non-human entities. This polarisation, while operational, is nevertheless debated (see: box 'The critique of green'), as the separation of humankind and its environment is artificial. Indeed, all the studies concern the (capitalist) anthropocene, *i.e.* a world where human activity has a considerable impact on the biosphere. Human societies act on their own conditions by modifying biological balances to satisfy their needs (Loreau, 2009). The concept of biodiversity itself includes the idea that the human species belongs to the rest of the living world, unlike the idea of nature, which largely externalises the non-human living world (Descola, 2005).

'Biodiversity' as seen by green criminology?

In the *Routledge International Handbook of Green Criminology* (South and Brisman, 2012; 2020), the term 'biodiversity' appears 93 times in the second edition (2020) and 40 times in the first (2012); yet, as the book has almost doubled in size (from 465 to 727 pages), this change seems insignificant. Perhaps more significantly, the term 'biodiversity' is now a separate entry in the book's index, referring to six separate passages (in the first edition, the term was bundled with other concepts such as 'eco-global criminology', 'political economy of environmental harm' or 'ecosystem biodiversity'). The six passages in question inform us about the treatment of this notion by environmental criminology: no specific contribution focuses on biodiversity and the term is only referred to in the introduction (5 occurrences) and the conclusion of the work (1 occurrence), as if to add a veneer of contemporaneity to the second edition of the manuscript. The word biodiversity is tacked onto a discourse that speaks of environmental protection, without any real added value. We are confronted with a discursive change rather than an effort to make a conceptual distinction. Nevertheless, if we dig deeper, we can see that the term 'biodiversity' is used to refer to a particular meaning: non-human living organisms (Brisman and South, 2020, 4); and, more often than not, to their endangerment as a sign among others of the harmful influence of humans on nature. Thus, in the field of green criminology, use of the vocabulary of 'biodiversity' thus retains its political or ethical meaning while setting aside the ecosystemic implication of humans.

The critical – even militant – perspective aimed at legitimising green criminology as an operational necessity (a blatant procedure in Brisman and South, 2019 when they evoke a 'criminology of extinction'; or again in Gore, 2017) is undoubtedly not external to this meaning of the term 'biodiversity': overall, environmental criminology concentrates on human actions or omissions that cause consequent damage to the natural equilibrium, even if this means sometimes losing the nuance and caution necessary for inductive empirical research.

What is 'biodiversity harm' in the context of the CRIM-BIODIV project?

Despite the somewhat caricatured vision of biodiversity held by environmental criminologists, a few definitional options are interesting, particularly because they are fully in line with the paradox mentioned above through their focus on the harmful influence of humans on the environment. Thus, whether biodiversity harm includes misdeeds (prohibited by law or not) of human origin directed against nature (Potter, 2010) or human manipulation of the environment that harms it (Lynch and Stretesky, 2011), green criminology systematically refers to the human being responsible (knowingly or unknowingly, maliciously or not) for the destruction of the natural balance.

If, as we have chosen to do, we refer to the notion of biodiversity here as ecosystem diversity (without totally setting aside genetic and specific diversity), we can propose a definition of 'biodiversity harm' that does not point directly to human action, even if it is strongly implied. Therefore, the CRIM-BIODIV project is interested in alterations to an ecosystem (in any case, this is what seems most likely; but it could also include alterations to species or genetic heritage), *i.e.* modifications to the structures that are essential for functional relationships between living organisms.

Vocabulary and political (re)appropriation

The notion of biodiversity – in its extended political use – has tended to be replaced over the last ten years by that of 'ecosystem service' (Granjou, 2013). This change of term offers a way of thinking about the transition between a naturalist way of thinking, which lists and classifies, and an ecological way of thinking for which links and functionalities take precedence. While the conceptual effort is interesting in the context of this project, this terminological shift also reminds us of the risk of reappropriation of nature by the capitalist logic (Massart, 2015).

The following are the definitions of 'biodiversity' and 'harm' to biodiversity that we used in the CRIM-BIODIV project. These definitions are intended to be simple – almost self-evident – for methodological and inductive reasons. 'Biodiversity' refers to **the (dynamic) balance of animal and plant varieties in a given territory**. Consequently, 'biodiversity harm' would concern the endangerment of this balance, *i.e*. **the destruction (voluntary or not) of one or more animal or plant varieties (or of their living and subsistence conditions) on a given territory**.

According to these definitions, it is the consequences of an action or decision – the damage – that define the field of CRIM-BIODIV research. These definitions are therefore intended primarily to be

operational by defining what is or is not a biodiversity harm. And this discrimination is not so simple… Indeed, a very large number of behaviours can be included in this definition of damage to biodiversity. Therefore, by focusing on the impact – the endangerment of the living balance through the destruction (primary or secondary) of animal or plant variety(ies) – the research framework is reduced. Let us take a few (fictional) examples to illustrate our point: draining a marshy area that is home to newts or yellow-bellied ringers falls within the scope of research without debate, regardless of the intention or reason behind this draining (the endangerment of biodiversity is unquestionable); in the same vein, not prohibiting motor vehicle traffic in an area that is the habitat of a protected plant or animal heritage (which is endangered by the repeated use of these vehicles) falls within the scope of research. On the other side, destruction of icebergs to make bottled water or, more simply, throwing rubbish on the roadside, do not seem to fall within the scope of research, even if these actions (capitalist gesture unconcerned with the climatic and environmental consequences, indecency or individual negligence) have, indirectly, a potential impact on the environmental balance. This is because, in fact, the damage in terms of biodiversity is not proven here. On the other hand, the case of industrial pollution or clandestine dumping of chemicals is much more complicated to characterise, and its inclusion in the field of research will undoubtedly depend on the observed consequences of this pollution on biodiversity. Should the risk of damage to biodiversity be treated in the same way as (proven) damage to biodiversity? The question remains open and arises in certain study cases…

As a final example, let us consider a contested practice towards which environmentalists hold unambiguous positions: hunting (see, for example, Eliason, 2003). Which hunting practices do or do not fall within the scope of the CRIM-BIODIV research? According to our definition, hunting accidents – *i.e.* the fact that animals (or humans) are injured as a result of poor shooting, within the framework of a regulated practice – do not fall directly within the scope of the research, despite the indisputable interest of this object of study, the maliciousness or carelessness that leads to poor shooting, or the negative impact and the amount of suffering inflicted. Poaching, *i.e.* the unauthorised and uncontrolled shooting of specimens, however, does fall within the scope of CRIM-BIODIV research, but less for the illegal aspect of the activity than for the risk of disturbing the population balance of an animal or plant species. More tangential cases may be subject to discussion, such as misidentification of the target during a hunt: does the killing of a pregnant or breeding female outside of a regulation objective constitute an attack on biodiversity? These questions remain open and the analysis of 'tangential' cases will shed light on the issue of circumscribing damage to biodiversity on the part of the stakeholders we met.

The issue of nudging, a priority but not so present?

The literature review also looked at the issue of 'nudging' – strategies of indirect suggestion aimed at changing human behaviour. First, the general literature in behavioural science or political theory was examined. Secondly, the specific literature on nudging in the field of environmental protection was analysed.

Nudging is a concept credited to Richard Thaler and Cass Sunstein and developed in the book *Nudge: Improving Decisions About Health, Wealth and Happiness* (2010). This book has had a certain impact, not only in the United States but worldwide, particularly in terms of public policy. The approach developed aims to support the creation of 'choice architectures' that encourage the adoption of desired behaviours, while remaining at an incentive level. No sanctions or constraints are envisaged; changes in behaviour are expected to occur as a result of incentives alone. This approach is based on the teachings of the behavioural sciences which, far from the homo economicus of classical decision theory, have highlighted what would be a new 'decisional human': 'eminently emotional beings, fundamentally social – *i.e.* influenced by others, in what they do, what they think, what they say – but also very much oriented by the context in which they make decisions and act through cognitive biases' (Singler, 2021, 36). The aim of nudges is therefore to take these different parameters into account, but only from a certain perspective. Indeed, it is not a question of 'convincingi or modifying the choice options available to individuals, but of designing "choice architectures" – that is to say, a way of presenting them – that encourage people to adopt a behaviour that is beneficial to themselves or their community. Nudges are therefore incentives that do not alter the financial cost of the various possible choices, but will highlight their social, environmental, psychological and other costs' (Désaunay *et al.*, 2016). It is by encouraging the population to adopt certain behaviours rather than others that public policies are implemented. It should be noted, however, that while some scientific disciplines speak of nudges, others, such as criminology, tend to speak of social control (Bozzo-Rey and Brunon-Ernst, 2018).

Three conditions are necessary to be able to speak of nudges in R. Thaler and C. Sunstein's perspective: the action must aim to modify the behaviour of individuals by changing the context in which they make a decision; these individuals must have the possibility of not submitting to the behaviour expected of them; and the expected change in behaviour must be positive for the person who submits to it (in other words, it cannot be an operation with purely commercial aim) (Bozzo-Rey and Brunon-Ernst, 2018).

In the field of the environment, nudges are credited with a certain potential to consolidate, within a global environmental policy, measures of both constraint and sensibilisation. Incentive measures thus constitute a third path, complementary to the first two traditionally implemented (Centre d'analyse stratégique, 2011).

We can note from the outset that the question of nudging appeared to be a fundamental issue when the research project was drafted, but the empirical studies allowed us to put our position into perspective. Indeed, while the issue of preventing behaviour harmful to biodiversity (and even direct and indirect incitement) comes up regularly, the reaction methods of the stakeholders we met seem more 'traditional': recourse to negotiation, assessment of the damage, attempts at compensation, administrative or penal treatment, etc. This may be seen as a pitfall of the research linked to the selection criteria of the study cases – we selected cases of identified biodiversity harm, not damage prevention policies – but it is also a result of the research itself.

2.2.3. Realities on the ground: How to define biodiversity in the context of harm?

Biodiversity without humans

The boundary between human and non-human may be blurry at times, but it becomes sharply defined as soon as a person needs to exercise authority to deal with cases of harm caused by one to the other. The definition of biodiversity instantly sheds its human component and is now fully composed merely of animals and plants. A new, razor-sharp boundary is established between human and non-human. Prosecutors, judges, court clerks and police officers who can exercise authority over the protection of nature, 'in addition' to criminal offences that affect the lives of human beings, have a *choice* to make.

> *'We're not talking about a malicious desire to cause harm. But prosecutors have to make a choice between the cases they take on. Overall, there are more serious issues to deal with'* (Person involved in the judiciary)

Considering that these departments often have limited resources, this choice is all the more significant: *a person or an animal? A person or a plant? Which case takes priority?* From a pragmatic point of view: *When they have domestic violence, drug trafficking and murder on their plates, it doesn't make sense to ask them to choose to deal with the destruction of species* (Person involved in the judiciary).

Some argue that humans are just one species among many others. In 'concrete situations', however, this premise clashes with a fundamental value of these people's daily reality: The importance of human life is unrivalled. Making any other choice turns into indecency. What matters more? What matters less?

> *'Attending a routine session.*
>
> *(Prosecutor:) What's the next case?*
>
> *(Court clerk:) The dismemberment of hundreds of frogs in connection with trafficking.*
>
> *(Prosecutor:) Oh, right, frogs, okay… We're going to focus on frogs… You'll see everyone smile in the courtroom'*
>
> *(Experience shared by a person involved in the judiciary)*

When humans are the point of reference, a hundred dismembered frogs become secondary beings. Conversely, when the reference framework focuses on ecosystems, the destruction of a population of amphibians assumes great significance. As a *symbol* of the wealth of wetlands, its organisms are particularly affected by human activity. Many conservation programmes have among their objectives the restoration of wetlands and the species that live in them. Indeed, these habitats and their species are often mentioned in the interviews conducted, exposing an alleged difference in the point of reference used by the judiciary and the police on the one hand, and administrations and NGOs on the

other hand. It is a difference that grows wider between the legal system and the interviewees, who by their statements sometimes intentionally break away from it.

This hierarchy of cases turns blurry when people, or even entities, 'specialise' in environmental matters. In a way, dealing exclusively with cases of harm to non-humans restores intrinsic value to biodiversity. While some people in the judiciary and police force salute this choice, many others observe it with a critical eye.

> *'This is what I hear all day long: 'Why would you choose tiny butterflies when you can help human beings?'. Most of my conversation partners smile: 'Oh, the environment… There aren't enough cases. What are you going to work on?'. Or: 'There are more pressing issues'. (…) because the environment is clearly the poor cousin of the justice system'.* (Person involved in the judiciary)

Nonetheless, specialisation does not wipe out all prioritisation of living organisms. The resulting choices shift to other categories. This also leads to new priorities being negotiated, based on regulations and tools, with the value of each transpiring one way or another.

The biodiversity of non-humans

Far from being inert, biodiversity, as described in our exploratory interviews, consists as much of organisms as of their interactions and connections. Through an empirical process, its definition draws on the evocations we associate with it: It's *the beaver that creates a wetland with its teeth*. It's the *maple grove that disappears and nobody cares*. It's *the calcareous grasslands, wet grasslands and their violet coppers… With their rare elegance*. It's *the Ardennes Plateau and the Plateau des Tailles*. It's the *molinia meadow, have you heard of the molinia meadow? And all its inhabitants.* It's, *and we probably won't agree on this, a marauding cat*. It's *even the myriad of coprophagous insects on the manure!* It's the *broom tree*, the *grass frog* and the *buzzard*. It's *the sparrow that used to annoy us and makes us happy when we see it now.* It's *the drilling of the woodpecker in the woods… the sound of home.*

Biodiversity, as described to us, is amorphous, fluid, constantly evolving. As soon as we've observed it, the subject of our attention has already changed. It consists of the memories of our interviewees, the lived experiences they are eager to share with us. Beyond the definitions, biodiversity seems to belong in the realm of the sensory, that which really comes to life in the immersion of the senses. Sometimes, it emerges at the heart of stories that make sense, without anyone, not even the storyteller, understanding why:

> *'Every time I see a swallow, I get chills. (Why's that?) When I was a kid, there were always swallow nests stuck to the edge of the gutters, with some sort of mud, in my grandmother's street. It was like a row of little houses in the countryside. One of my uncles lived more or less across the street. It was said that destroying these nests brought bad luck. One day, when I was young, I was in the kitchen with my grandmother. Suddenly she stood up. She was shouting at the window. 'What is he doing? He's gone crazy.' 'Oh god, he's gone crazy'. I ran to the window. On the other side of the street, my uncle was knocking down the nests from the front of his house*

> *with a broom. I'd never seen my grandmother like that. She was shouting... She was furious... I know it makes no sense... But... That uncle... He was literally consumed by a disease, shortly after. I can still picture him (closes her eyes and slowly touches her forearm). I can picture him covered in blotches. He suffered a lot. I'm not saying it was because of that but... I can't help thinking that he should have left them alone... Anyway, I have a profound respect for these birds'* (Scientist working on spatial planning issues)

And yet, anything subject to law, no matter how dynamic, must be defined. How else can it, in this case biodiversity, be protected? How else can it be supported by adequate administrative and legal tools? Therefore, it is no longer a question of describing it intuitively, but rather speaking on behalf of it to assert what everyone - individually - believes are its rights. The people we interviewed offered a glimpse of definitions 'they' (themselves) find issue with. And, even if 'they' are aiming to protect biodiversity, it is not necessarily the same biodiversity they are trying to preserve. This is where various categories of living organisms come in. They contrast 'ordinary' and 'remarkable' biodiversity, 'emblematic' and 'useful' species, 'wildlife' and 'domestic breeds'. In every case the interviewee guarantees that, within these duos, one category is being left out by the *policy makers*. This seems to imply that, in cases of harm, only one of two categories is taken into account, never both, and not in equal measure.

'Ordinary' and 'remarkable' biodiversity

> *'We used to talk about common things, but they make those disappear'.* (Civil servant)

Legal tools, much like conservation programmes, tend to focus on the rarity and the vulnerability of a specific organism, characteristics that are often intrinsically linked to one another. Politicised discourse, on the other hand, regardless of the entity, often approaches biodiversity as a whole. It is meant to be protected in its entirety. Does the hierarchy of living organisms belong to tacit pragmatism?

> *'Many politicians see biodiversity as nothing more than some species of flora or fauna that cannot be found anywhere else. But biodiversity is much more than that, it's everything that surrounds us. For me, at least. But they don't want to hear that. They (municipalities) brush it aside, saying: 'We have the right to do that, because it won't harm anyone or anything''.* (Member of a regional nature association)

'Emblematic' and 'useful' species

Regardless of the context, it seems necessary to prove that what is being defended is 'remarkable'. It seems mandatory to make a distinction from 'ordinary' organisms, and this generates tension with the interviewees' values.

In this perspective, 'common' biodiversity blends into various backdrops, whether they are 'human' or 'natural'. In some cases, it might become visible again, when it is about to disappear. As a novel

rarity, it can even turn into the nostalgic symbol of an ever-changing region, of a bygone era. *The sparrow that used to annoy us and makes us happy when we see it now* is an example of that phenomenon. Once extremely abundant in our cities and in the countryside, the sparrow has gradually become the symbol of a 'common' biodiversity that worries us because of its decline.

Some of our interviewees take a stance against this perceived invisibility of what is common when it comes to protection tools.

> *'If even they are disappearing, what will we have left?'.* (Member of a local nature association)

This is connected to the case of the so-called 'emblematic' species.

> *'When they interfere with emblematic species, that can cause quite a stir. (…) Exceptions are often made for these species, but, in my opinion, the focus should not be on the rarest species, but on the most important ones'*. (Civil servant)

In this context, there is a differentiation between the usefulness of a species, its impact on the environment and on other organisms, and its existence as a symbol within a community that is trying to protect it. Usefulness ties into interactions between species, whereas the heritage and the 'symbol' fall under a collective memory of what 'defines an environment or a region'.

> *'I'm increasingly concerned about species that can weigh heavily. (…) Take the grass frog, the most common species in this region. We never worried about it. When it comes to amphibians, we've always talked about rarer species such as newts. (…) We're not aware of its decline because it's omnipresent. But what we fail to see is that populations are crashing. They're dwindling catastrophically. In certain areas where populations used to number in the thousands, only a few dozen individuals are left. This is a major challenge for the functioning of our ecosystems'.* (Civil servant)

It is noteworthy that 'ordinary' is not seen on the same par as 'domestic', even though it is just as omnipresent.

> *'Cruelty to pets is punishable by up to 5 years. Negligence, for instance, when the owner doesn't feed their horse... A scrawny horse, now that triggers reactions, at every level, in the press as well as in the courtroom. (…) But destroying an entire environment, that's 6 months, and everybody knows that the offender won't have to serve them'.* (Person involved in the judiciary)

The creation of protection tools appears to be intrinsically linked to the way we perceive living organisms and the categories we assign to them. When we asked if there were institutional tools available for taking care of common nature, our interviewees replied, laughing: *They should invent those!*

How to define harm

It is hard to come up with a fixed definition for biodiversity, and the same applies to the elements that can cause harm to it. What constitutes harm? Is it synonymous to crime? Many intersecting issues emerged during these interviews. They mostly have to do with spatial planning, agriculture, forestry and the management of natural resources. To sum it up, there were farming and hunting practices deemed to be harmful; inappropriate plant management practices; but also, illegal dumping and overcrowding of certain 'natural' environments.

Legal harm

Among the cases discussed, several are clearly mentioned in the environmental legislation. Some of these texts describe punishable acts with great precision. The Forest Code in Wallonia, for instance, was often cited as an extremely precise tool, even 'too precise', in which any disturbance of wildlife can be sanctioned. Other legal tools adopt a more flexible concept of harm, giving significant leeway to the people in charge of responding to it. This flexibility leaves space for individual momentum and can potentially stimulate evolution this way. On the other hand, it can cause collective discouragement due to its lack of effective practicability. Let us take a look at the Nature Conservation Law (Loi de la Conservation de la Nature - NCL), hailed by many interviewees because of its 'remarkable' architecture. In 'problem situations', however, it is described as being an abstract tool. Indeed, its strong loyalty to the principle of intentionality seems to represent an obstacle when it comes to translating 'evident visible harm' into legal facts.

> *'In a way, there are fewer recorded NCL offences. It's not just a story that they focus on the Forest Code rather than the NCL. For example, an offence that is very hard to sentence someone for under the NCL is the disturbance of species. Imagine a piece of land, a meadow, with orchids on it. Then a person builds a house on it with a building permit. The NCL says 'It is forbidden to destroy or interfere with protected species, such as orchids, knowingly (…) intentionally.' We won't be able to give this person a penalty notice. It's impossible. A destruction of the environment has occurred, but that's how the law is set up... Unless I notified the person up front by certified mail: 'Watch out, there are orchids. You are strictly forbidden to destroy them. You have to apply for an exemption first.' Without that we are powerless.* (Civil servant)

Just like the land that tells a story, the nature of the legislation is also rooted in socio-political contexts. And the trust they inspire is tacitly linked to this. When these legal texts are named, with their level of precision and their effectiveness, it is not hard to guess which lobby groups have been involved. It is interesting to observe that all the interviewed actors, from all three domains, describe these lobbies that impact the credibility of the resulting tools.

> *'That's because the legislator... is... Well… The business lobbies were powerful enough to counter [...] the crackdown on environmental crimes so they could retain a certain freedom to conduct business. And to shift the balance ever so slightly more in favour of the economy instead of nature. That's why the NCL is unenforceable. With the Forest*

> *Code, on the other hand, the hunting lobby said 'You know, dogs that walk in the woods disturb wildlife. They bite baby goats, fawns', and so on. We can go ahead and destroy a molinia meadow in an agricultural zone to build a warehouse, no problem, but killing a fawn, that's very serious (ironically). That shows how much power the lobby groups have.' (*Civil servant*)*

Harm beyond crime

In the course of the interviews, another level of harm started shining through. This level is embedded in individual standards that describe biodiversity, not as it is defined in legislation, but as an entity they 'got acquainted with' and learned to observe. Legal tools struggle to describe this entity, which is changing every day through its internal interactions.

> *'They (entrepreneurs) cleared this wooded area on the agreed date. The entire procedure had been followed. But nature doesn't respect procedures. It's frustrating. Birds build their nests depending on the temperature [...] and the changing of the seasons. By following a fixed procedure instead of leaving their office to check where hundreds of birds were nesting, they destroyed everything. You can say what you want, but that's a crime [...] against life. But to know that you need to see the place... See the birds and be the least bit interested in their way of life'. (*Member of a local nature association)

And it is precisely these notions of change and temporality that make these matters difficult to grasp in terms of law. *There is no punishment without proof.* This proof that establishes the legal existence of harm builds on a 'quantitative' description of the affected natural entity, its value and the scale of its disturbance: three elements that are hard to gauge for an entity that is constantly evolving. How can you provide such proof? Based on which criteria? Using which indicators?

> *An example of this inability to provide proof: a cave that is home to a large colony of bats. The Court prosecutes because the colony was disturbed by events, a fire in this case. In order to prove the harm, you have to prove not only that the colony has a historical presence on this site, but more importantly that it was present at the time of the events and* furthermore *that it was disturbed. What did we have at our disposal? One scientific paper that was 20 years old and another one that was 5 years old. So no proof that the colony was present at the time of the events. In court, they asked us 'How do you know that the bats were actually there at that time?' (…) How are you going to prove that the colony was actually disturbed when the fire broke out? We would need to know how many bats were present at the time of the events and prove the disturbance. It's complicated. It's impossible, really'. (*Prosecutor*)*

Even if scientific data are necessary to prove the existence of harm, these data are not necessarily compatible with the required proof. They are not intended to prove that the subject changed only because of the harm. It also changed because its nature is to change.

Moreover harm can be *brutal, like ploughing a field of orchids. That is radical.* But it can also be *more insidious, like farming practices that destroy gradually* without a clear boundary between the situation before and after, between preservation and destruction.

> *'Just applying fertiliser little by little can be enough, or leaving livestock or too much livestock, or mowing a bit early'. (*Civil servant*)*

And if biodiversity is perceived through the senses, the same might apply to describing the harm done to it:

> *'The Erika case. I was personally affected. I saw it. I saw this oil spill coming closer... I was at the seaside in the north of France. I will never forget that magma drifting towards me... That smell. I followed everything, everything that was said or decided on this case. It was all over the media. The case made it to the Court of Appeal in Paris. It was the first time that a court of law had ever used the term 'environmental harm'. The first time that the notion of 'waste' was used. Once those stinking hydrocarbons mixed with the sand, they became 'waste'. That's when I started developing my environmental concern, and it stuck with me throughout every discussion that followed'. (*Person involved in the judiciary*)*

2.3. In case of biodiversity harm… The construction of a tool

The final section of this part 2 describes the deployment of a permanent tool for analysing situations of biodiversity threat and possible action levers.

*

The first goal of this point was to define the 'tool' approach that characterises this subproject. The Cambridge Dictionary offers a rather broad definition of the term:

> *Tool: 'Something that helps you to do a particular activity'.*

A tool is thus a means to facilitate action-taking, in this case responding to biodiversity being damaged. To stay in the right framework, the search will have to be narrowed down by adding the adequate prefixes to the concept: environmental communication, information, or education tool. Here are some definitions that inspired the approach:

> Definition of Environmental communication from 'Environmental communication and the public sphere', Cox (2010): *'Environmental communication is the pragmatic and constitutive vehicle for our understanding of the environment as well as our relationships to the natural world; it is the symbolic medium that we use in constructing environmental problems and negotiating society's different responses to them'.*

> Definition of Environmental education from the United States Environmental Protection Agency: *'Environmental education is a process that allows individuals to explore environmental issues, engage in problem solving, and take action to improve the environment. As a result, individuals develop a deeper understanding of environmental issues and have the skills to make informed and responsible decisions'.*

Building on these definitions, the tool developed here will aim to convey information providing a better understanding of the environment in order to encourage its users to explore issues through a process of informed and responsible action-taking.

2.3.1. Harm to biodiversity

While the concept of harm to biodiversity is similar to that of 'harm to the environment', it focuses on a component that has yet to win a place in political and legal discussions: the decline of the diversity of life on the planet.

This harm can affect a species, a habitat or a community. There are currently only a few legal measures in place besides those that deal with rare species (and their respective habitats) and indirectly those that regulate the coexistence of human activities and the natural resources they exploit (water, air, soil, wood, mines, quarries, etc.).

2.3.2. Existing tools by region

There are already some support tools available that allow people to respond in case of harm to the environment (and some specifically to biodiversity) in Belgium and abroad. Below is a summary (see TABLE I, II, III and IV below) of existing resources in every region (and outside Belgium) in order to refine the objectives of the tool and to draw inspiration from the work of other civil organisations or institutional actors. We selected those tools that provide information on practicable legislation, procedures to be followed, actions that can be organised and who to contact in case of harm to biodiversity (or to the environment in a broader sense).

Wallonia

TABLE I - Tools in Wallonia				
	Organisation	Contents	Format	Web link
Civil organisations				
Fiches de reaction locale Région Wallone (2018-2022)	Natagora	Harm to nature, urban planning, pollution and waste	Informative, written	Fiches de réaction locale
Le manuel de résistance (2021)	Occupons le terrain	Urban planning	Informative, written	Manuel de résistance
Thematic brochures on water and waste (2020)	Cellule Environnement - Union Wallonne des Entreprises	Water and waste management and regulations for businesses	Informative, written	Brochures thématiques UWE
Institutional actors				
SOS Environnement Nature - 1718	Service Public de Wallonie	/	Telephone service	Présentation 1718
Portail Biodiversité Wallonie	Service Public de Wallonie	News on législation , conferences, policies in Wallonia	Informative, website	Portail Biodiversité

Brussels

TABLE II – Tools in Brussels				
	Organisation	Contents	Format	Web link
Civil organisations				
Fiches de réaction locale Région Bruxelloise (2018-2022)	Natagora	Harm to nature, urban planning, pollution and waste	Informative, written	Fiches de réaction locale (FR&NL)
Institutional actors				
Guide des infractions environnementales / Gids Milieu-inbreuken (2021)	Bruxelles Environnement – Leefmilieu Brussel	Urban and industrial environmental offences (+ urban nature)	Informative, written	Guide des infractions environnementales (FR) Gids milieu-inbreuken (NL)
État des lieux biodiversité et espaces verts / Stand van zaken biodiversiteit en groene ruimten	Bruxelles Environnement – Leefmilieu Brussel	Information on biodiversity, nature management and policies	Informative, website	État des lieux biodiversité (FR) Stand van zaken biodiversiteit (NL)

Flanders

TABLE III – Tools in Flanders				
	Organisation	Contents	Format	Web link
Civil organisations				
Wegwijzer Milieuhandhaving	Departement Omgeving	Redirection to relevant institutions dealing with environment and nature	Informative, web tool	Wegwijzer Milieuhandhaving
Emis Navigator	Departement Omgeving	Redirection to legislation on nature and the environment	Informative, web tool	Emis Navigator
Informatie, beleid en dienstverlening ANB	Agentschap Natuur en Bos	Redirection to legislation on nature and the environment	Informative, website	Dienstensite ANB
Kompasnaalden	Agentschap Natuur en Bos		Informative, written	Kompasnaalden

Other

Below are some other tools that helped us reflect on this new tool through their formats or the approach used to tackle the issue.

TABLE IV – Tools abroad				
	Organisation	Contents	Format	Web link
Civil organisations				
Fiches juridiques	Ligue Protection des oiseaux	Harm to wildlife and habitats	Informative, written	Fiches juridiques LPO
Manuel d'auto-organisation d'action directe non violente (2022)	Extinction Rebellion France	Guide to the organisation of direct action	Informative, written	Manuel d'auto-organisation actions directes
Guide pour faire échouer des projets contre (la) nature (2021)	La Relève et la Peste	Guide to mobilisation against urban planning projects	Informative, written	Not available online
Carte des luttes	Reporterre	Map of local actions, projects and collectives	Interactive map	Action map
Global Atlas of Environmental Justice	Environmental Justice	Map documenting social conflicts around environmental issues	Interactive map	Environmental Justice Atlas
Suing Goliath, an analysis of civil proceedings brought against EU companies for human rights abuses and environmental harm in their global operations and value chains, and key recommendations to improve access to judicial remedy (2021)	European Coalition for Corporate Justice	Analysis of recent duty of vigilance cases regarding European companies	Informative, research analysis, written	Suing Goliath ECCJ
Institutional actors				
Flash Environmental Assessment Tool	NATO	Disaster risk management	Informative, written	FEAT

3. METHODOLOGY

The methodology will be presented in four points. First, the practical methodological aspects will be presented, from the exploratory phase to the analysis of the case studies, including their selection and completion (3.1.). Next, we will discuss at length the establishment and contributions of the interdisciplinary dialogue that runs through this research, and which was one of its main objectives (3.2.). Some ethical and methodological issues, mainly related to the case study method, will then be identified (3.3.). Lastly, we will present the method deployed in development of the tool (3.4.).

3.1. Methodology, material and workflow

Exploratory investigation

The exploratory phase was based on a field survey, in which semi-structured interviews were conducted with different types of players involved in determining how to respond, be it formally or informally, to infringements of environmental rules.

The notion of 'infringement' has been introduced in an open way so that players in the field can give it a definition in the light of their own experiences, the aim being to set the factual and geographical backdrop against which an infringement is committed. Our interdisciplinary ground base also leads to particular attention to the interaction between humans and non-humans.

The implicit hypothesis underpinning our starting point for this exploratory investigation is that the notion of damage caused to biodiversity includes not only factors set down in legislation but also comprises a multitude of *other things*, which gravitate around, or can even run counter to, legal norms. The objective of these first interviews is to see what kinds of 'problem situations' these players face (Mounet, 2008) and how they deal with them. The aim is to gain insight into the broad notion of infringement, as enshrined in the protection measures whose breach carries a criminal penalty, and to set out some form of empirical typology.

'What is it that harms biodiversity?' 'What response do they give?' 'What view do they take of the statutory tools currently available?' 'How do they negotiate their application?' In the interviews, the questions were rarely asked in such an outright fashion. These are insights gained more as the interviewee relates the circumstances pertaining to a given case of harm. Moreover, it is in hearing what they feel about a certain infringement within their experience that we get to learn the individual's definitions of what constitutes biodiversity, the two being closely intertwined.

The subjects ('players') were mapped out using bibliographical research and with the help of a small circle of players we looked to as a resource. The mapping is conceived as three domains, with each type involved at a different stage of an infringement being committed. The mapping itself shifted as interviews were conducted; it comprises the following domains:

- Judiciary: dealing with environmental infringements and ruling on what consequences are appropriate.
- Administrative: gathering data on species populations, issuing penalty notices for infringement and dealing with administrative fines.
- Biodiversity protection associations: gathering ecological data and playing a part in getting infringements noticed.

Initially conceived as self-contained domains, it was quickly clear that none of these is hermetically sealed off from the others. The *association* groups are particularly intertwined with the others, something that is regularly outed by the membership of different groupings. Some of the interviewees were at one and the same time involved in biodiversity protection organizations and working in the judiciary or civil service field (or the police). This porosity can be seen as playing a part in the fuzzy duality expressed as to the concepts of infringement and criminal acts. It will be taken into account in analysing the data and is a datum fact in and of itself.

The process comprised a series of nine semi-structured interviews with players belonging to each of the three domains as identified. We either met face to face with the interviewees or via a video link, as they preferred; the pandemic regulations were also respected.

The interviews were as follows:

- Two with people involved in the administration of justice (Judiciary).
- Three with civil servants working for various government offices (Administrative). We also interviewed one local government enforcement official.
- Three, each with a different group of biodiversity protection associations. Interviewees sketched out their environmental commitments within different regions and practices indicative of their possessing specific knowledge and skills.

A standard interview guide was prepared and then adapted as guidance in conducting the interviews in each domain. The standard interview guide was designed to elicit information regarding three distinct areas of the research: to gain a view on how well biodiversity and any harm that afflicts it are represented; the typology of the harm; levers/barriers encountered in the processes of dealing with damage. However, particular attention was paid to how each interviewee might, in thought or deed, diverge from the diktat that is common currency in their field of operations.

The prime objective, therefore, was to construct an empirical definition of the notions of biodiversity and harm, by collating the experiences of those charged with responding to ecological damage. The purpose was to look at the possible representations of the combined notion of *biodiversity harm*. The interviewees were also asked to describe such situations of harm they are called on to deal with in the

course of their work. We also asked them about any *notable acts of harm*[5] within their field of experience.

Their responses factor into the parameters within which, to their mind, such acts of harm assume importance or become unforgettable. Analysis of the data allowed us, at one and the same time, to define an empirical typology of acts of harm, as also to set down a list of selection criteria capable of being mobilised in the subsequent project phase.

Research phase

Selection of sample cases

Both research teams set out to review the gamut of grey literature associated with potential cases of harm. Dozens of practical cases emerged from this research. A comparison was made using an analysis grid composed of the selection criteria. The selection criteria consisted of the following elements: the type of harm; its geographical location; the types of players involved; the types of responses deployed. The objective was to put together a diversified sample of harm caused for each criterion. The selection gave us a short-list of fifteen actual cases. While not comprehensive, this cross-section is an indication of the complexity of environmental criminality's institutional landscape.

The typology of acts of harm emerging from the exploratory phase draws on a wide range of cases.[6] The actual case studies were chosen in function of their complexity. We needed to gain an understanding of the destruction of species and of their environment, both at the level of the individual non-human creature and the level of a colony of creatures or a green space covering several acres. The typology that came out of the exploratory phase also highlighted the importance of selecting cases involving not just *rare and notable species and environments*, but also areas of *ordinary nature as well as* less clear-cut cases relating, in particular, to the management of invasive species. As regards geographical location, the cases were selected in such a way as to cover all three regions into which Belgium is divided. Finally, we were especially careful to focus the selection on cases in which the players seen as initiating harm hailed from various walks of life: ordinary members of the public, businesses, public institutions, etc. Similarly, a range compiled in this manner brought an understanding of the various paths by which an institutional and/or individual response feasibly can be given at the time. This last criterion allowed particular attention to be drawn to both cases legally considered to be criminal acts and less formal harm situations.

Analysis of the actual cases

Based on initial evidence, a precise angle of analysis was adopted for each case, since, in this phase of the project, it isn't in fact of use to analyse all the sociological factors inherent to a given case. On the contrary, the specific approaches decided on allowed for a detailed examination from an angle of

[5] Comments from the standard interview guide developed as part of this project.
[6] This is reflected in the state of the art.

approach deemed relevant in order to construct the transversal analysis. Moreover, by developing a specific sociological facet, each case constitutes a state of affairs peculiar to itself.

Semi-structured interviews were conducted following a mapping of key players, together with field visits for each case under review. Among the political entities met, interviews were conducted with several aldermen, a political representative involved in a conflict of use as well as a mayor and two representatives of an intercommunal association. Several representatives of the legal world were also interviewed: two magistrates, a legal adviser, two legal experts and two lawyers. People from different economic activities were also met: four farmer-breeders, a brewery worker, a technical representative of a carrier group and foresters. Moreover, several interviews were conducted with hunters, including two representatives of the hunting world. Citizens involved in the cases dealt with were also interviewed. Three Zadists, a citizen defending a common resource and two naturalists entered into dialogue with the researchers. Several environmental associations, both local and regional, were also the subject of interviews, as well as a regional urban planning association, a fishermen's association, a citizens' platform, and several project managers specialising in urban nature. Two poachers linked to the cases studied also agreed to be interviewed. In addition, several scientific academicians were interviewed: an expert on mammals, several experts on the expansion of invasive species and an expert on forest management. Finally, many public service managers provided valuable information during interviews conducted as part of this project. Interviewees included: several agents in charge of managing biodiversity-related offences, agents in charge of poaching cases, three sanctioning officials and a municipal service responsible for managing human-wildlife cohabitation. three interviewees wished to remain completely anonymous. Their position as well as their membership in any social group are therefore expressly not mentioned. A total of 99 interviews were conducted with this set of actors, all concerned by the practical cases studied.

It should be noted that some players declined to take part in this project when asked. In that particular event, it is only what they had said publicly that could be used. A study of official, legal and/or territorial planning tools was also developed on a case-by-case basis, notably from the viewpoint of actual descriptions given by the players in the field in question. For some particularly high-profile cases, we also conducted a comprehensive review of relevant grey literature, including press articles and documents published by different types of players. Television footage and, where appropriate, reactions from various social networks were also analysed.

The resulting analyses were then anonymised given that the most cases and their specific features could be easily locatable and/or identifiable, which could have had negative consequences for interviewees, who had been assured up front of their anonymity. The various cases were presented to the guide committee for validation. The contents developed were also presented to them halfway through the research project.

Intra- and inter-team organisation

Periodic meetings enabled the teams to establish interdisciplinary dialogue. Every two months, the two research teams met to discuss the content they had compiled and to work together to construct a cross-analysis of the actual cases.

Both the selection criteria and the selection of actual cases were decided at a meeting of the two research teams at which a researcher from each team presented a grid showing criteria and a proposal for sampling actual cases. Together, the interdisciplinary team produced a common analysis grid. The actual cases were also split among the researchers. The criminologist team took on nine cases, some of which were handled in major mode, with extensive research being done into them, and others in minor mode, based on a smaller collection of data. The life science team, meanwhile, took charge of six cases, undertaken in major mode.

3.2. Research narrative and epistemological encounter

> *'The openness to modifying one's knowledge on the basis of contributions from other disciplines can give the impression that one is going to use this learning to abolish "the place of the other" by phagocytising their contribution!' (Létourneau, 2008,* our translation*).*

After a technical description of the method used, we feel it is important to tell the story of this resolutely interdisciplinary research, in which life sciences and human sciences are combined and confronted, based on observations of biodiversity harm in Belgium. This story was submitted to the journal *Trilogiá* in the form of a resolutely interdisciplinary scientific article. The two institutions involved in the project have very different core activities – a federation of environmental associations and a criminology research institute – but they nevertheless intend to study together specific and targeted cases of damage to biodiversity, seen as 'problem situations' or local 'crisis' situations: an industrial project implanted in a natural area; a case of *tenderie* (bird snaring) judged in court; an information campaign implemented following the pollution of a river; the crucifixion of a beaver, etc. Each of these cases is studied by a biologist and/or a criminologist in order to highlight the perceptions of the actors involved in these cases and the methods used to defend or promote their position. Amongst other things, the use (or not) of administrative and/or judicial remedies to resolve the infringement situations studied is examined. The researchers then come together in a transversal analysis aimed to elicit knowledge from specific local situations. From the outset and beyond the experiences and representations of the stakeholders, the project aims to understand the reasons for actions, reactions or inactions in the face of (potential) biodiversity harm.

The next few pages of the report are intended to be primarily epistemological – how do the life sciences and the human sciences approach casuistic methods in order to generate, individually and

then together, scientific knowledge relating to (protection of) the environment? It also focuses on methodological issues – what is a case study for biology and criminology; how do biology and criminology combine or collide?

3.2.1. The construction of a research project between life sciences and human sciences

The initiative for the project came from the Operational Department (OD) 'Criminology' of the NICC, which has the particularity of being a scientific establishment attached to the administration of justice, while enjoying a status that guarantees its researchers scientific independence. The research carried out there is traditionally intended to inform the criminal policy of the country's Minister of Justice; to do so, the researchers mobilise both qualitative and quantitative data. In 2018, the OD Criminology took the initiative to carry out an exploratory study on environmental crime, particularly following the *National Security Plan 2016-2019* and the *Integral Security Framework Note 2016-2019*, which address this theme from a limited angle. These policy documents focused on five priority phenomena: waste fraud, trafficking in endangered species of fauna and flora, animal welfare, energy fraud, and environmental crime in the North Sea. This segmented approach, which may be necessary at an operational level, tends to mask the scope of the problem. The exploratory study conducted at the NICC therefore aimed to examine environmental 'pénalité' more globally, understood as all activities directed by the imposition of sanctions (Kaminski, 2010) in response to environmental infractions. In view of the limited criminological studies conducted in Belgium, it was also a question of participating in the construction of an innovative and specific criminological expertise on environmental crime and penal protection of the environment. Indeed, while Anglo-Saxon criminological research has been interested in these issues since the 1990s - under the banner of green criminology (see above, 'State of the art') - French-speaking criminology seems to be lagging behind on these unavoidable contemporary issues.

The research consortium was built with a partner of choice: Canopea – at the time: Inter-Environment Wallonie –, a federation of environmental associations with solid field knowledge. Since 1974, this federation has constantly developed its expertise in various environmental issues. One of its missions is to monitor environmental legislation and policies. This work is carried out through the production of advisories and scientific analyses, as well as through representation in various opinion forums and talks given in various meetings. Canopea has around twenty thematic project managers, the majority of whom have a scientific degree (agricultural engineers, biologists, bioengineers, civil engineers, etc.). In addition to the scientific expertise of its project leaders, Canopea also bases its analyses on feedback from its member associations in the field, as well as on regular monitoring of scientific publications related to its subjects of interest.

The first exchanges between NICC and Canopea focused in particular on questions of environmental inequality, the sense of impunity in the face of obvious violations of nature, citizens feeling resigned to the situation, or even the environmental burnout that can strike certain activists… A central

question shared by the two institutions is: what are the levers of behavioural change in the area of environmental offences? This question, although extremely delicate, is of interest to criminologists seeking to understand the motivation behind individual and collective action, both in terms of offending behaviour and the various social reactions that follow – or do not follow. It is also of interest to environmental associations, as it sheds light on the field of possible interventions for the efficient protection of nature.

An unprecedented alliance was thus created between a scientific research institute in criminology and a civil society organisation represented by researchers in life sciences working within a federation of environmental associations. The bottom-up research project *CRIM-BIODIV - Criminal Behaviour Against Biodiversity* is based on a comprehensive and inductive approach to specific cases of biodiversity harm in Belgium. This focus was a first – strategic – choice that shaped our work.

While the climate issue is absolutely central in the public debate and in the calls for scientific projects – at least since the 1992 Rio de Janeiro Earth Summit – issues related to the erosion of biodiversity seemed to be under-investigated, perhaps at the international level and certainly at the national level.

While the institutional backgrounds of the two partners in this scientific research are different – the quest for a balance between scientific research and criminal policy input on the one hand, and the work of updating and monitoring environmental actions and policy advocacy on the other – NICC and Canopea also have distinct research cultures. As a research institute, NICC employs scientific staff who are experienced in conducting research. The Operational Department 'Criminology' is mainly composed of researchers in the legal and human sciences: criminologists, psychologists, sociologists, jurists, etc. Nevertheless, the environmental topic is largely under-investigated: it is an emerging area of research where the work has been taken up by researchers without a background in life sciences. Indeed, a jurist-criminologist and a criminologist of sociological obedience, both senior researchers, are in charge of the CRIM-BIODIV project at NICC. At the time the project was conceived, Canopea was not recognised as a scientific research institution. However, the recognition acquired in this context has reinforced the citizen sciences that its members have been undertaking for years together with federated local and regional associations. Canopea is above all a federation of environmental associations that monitors environmental policies and legislation. Its members include a number of local and regional associations, both professional and voluntary, whose social purpose is to protect and maintain biodiversity. The interactions between Canopea and its members make it possible to combine the scientific and legal knowledge of project managers with the field experience and situations faced by the associations.

3.2.2. Case studies: method(s) and description(s), building an interdisciplinary dialogue

Putting action (individual or collective, civic or industrial, political or managerial, ecological or frivolous) at the heart of the CRIM-BIODIV project is urgent in a context where the increased attention paid to the environment and biodiversity is reflected in two types of evolution at the individual level: an adoption of lifestyles that are more respectful of this environment and an engagement in protest actions when it is threatened (Pelenc, Wallenborn, Milanesi, Sébastien, Vastenaekels, Lajarthe, Ballet, 2019). This double movement progressively legitimises biodiversity damage as a social issue that the (human and living) sciences must address.

The (in)actions or reactions in the presence of biodiversity harm depend largely on the representations that individuals have and pass on to others. Although a few studies have already highlighted the diversity of these perceptions of the environment and biodiversity (Caillaud 2010; Cormier-Salem, 2014; Skandrani and Prévot, 2014), it is nevertheless a little-documented topic in Belgium. However, P. Kromarek wrote: 'activating public action is linked to the degree of environmental awareness of each citizen as well as that of the prosecuting authorities' (Kromarek, 1990, *our translation*). It is in social psychology that the most promising work is being carried out to study the links between social representations and human behaviour, and also shed light on the levers for encouraging behaviour favourable to biodiversity (Caillaud, 2010; see also the section on nudging in the 'State of the art'). By calling on this knowledge under construction in other scientific disciplines – in this case, the legal and psychological sciences – the CRIM-BIODIV project intends to bring together the human sciences and life sciences in a resolutely interdisciplinary co-construction aimed at co-production of knowledge. This project is thus understood as 'a process, a global professional approach integrating disciplinary knowledge, actors with different disciplinary identities that shift the established positions and orders in a system, and bring innovation to the disciplines' (Baillat, Renard, 2001, *our translation*). While it is already established that, in the context of environmental research, it is necessary to transcend traditional disciplinary, conceptual and methodological frameworks, the CRIM-BIODIV project innovates by integrating a dialogue between researchers in the human sciences and researchers in the life sciences into the same methodological framework.

The construction of knowledge on biodiversity harm is mainly done through **case studies**: **'problem situations' in which (alleged or proven) harm to biodiversity has led to a questioning or an action on the part of one or several individuals, acting as citizens, associations or representatives of a public authority**. This relational and micro-social approach leads to a focus on field research to observe the attention paid to biodiversity and the meaning of its defence. In other words, it is a matter of focusing on the sequence of actions, considering them as 'full of interactions and strategies of calculating actors involved in a game around the rule' (Weller, 2000, *our translation*). This interest in action encompasses what is done but also what is not done. Each individual makes choices, wishes to act but is sometimes limited in their action. It is therefore the reality of action that is important to grasp, according to the perspective developed by Y. Clot in particular, for whom activity has a volume that exceeds the activity

carried out: 'the reality of activity is also what is not done, what we try to do without always succeeding, what we would have liked to do or could have done, what we no longer do, what we think or dream of doing, what we discover we can do by doing something else or what we do differently by doing what we do' (Clot, 2003, *our translation*).

This approach testifies to the inductive and comprehensive perspective of the project, which makes it possible to reveal how biodiversity harm becomes a social problem in Belgium, given that 'social problems are not the result of intrinsic malfunctions. They result from a process by which a given condition is progressively identified and designated in a society as a social problem. A social problem does not exist until a society recognises its existence. Indeed, a society that is not aware of a problem does not perceive it, does not address it, does not discuss it, does not do anything about it. It is therefore necessary to consider how social problems arise in a society' (Blumer, Riot, 2004, *our translation*).

Case studies provide the opportunity to analyse situations in depth, in their context. In particular, it makes it possible to understand the behaviour of individuals and their interactions (Gagnon, 2012). In concrete terms, it is first a matter of 'presenting' the multiple pieces of information that are collected on several situations of biodiversity damage, which may come from direct observations, interviews, press articles, reports, etc. (Albarello, 2012). The research then makes it possible to give meaning to these traces, to bring out the representations, emotions, etc. that emerge from them, while paying attention to local knowledge (Sabourin, 1993) and to the context in which the cases studied emerged (Hamel, 1998). The project also intends, through this study, to document the observation that the collapse of biodiversity is a threat to both humans and non-humans; it will also attempt to reveal the existing forms of interdependence between humans and non-humans (Guimont, 2020).

For each case selected, the methodological approach consists, first, of identifying and recording the media, administrative and legal traces, then of mapping the actors involved and carrying out interviews with the main people concerned in order to understand their perceptions of the case in question, and finally of going out into the field to observe the action and to visualise the case in concrete terms in order to make the analysis of the case in question as detailed as possible. By favouring proximity to the field, the CRIM-BIODIV project intends to engage its researchers in special relationships with the actors in the field, in the ethnographic tradition. Indeed, researchers who favour proximity work 'engage in relationships of empathy and reciprocity with their interlocutors. In order to have access to what is going on in a group or a family, to the systems of relationships that bind individuals, to the issues of the social structure, to its practices and unofficial norms, ethnographers cannot adopt a position of exteriority. In order to be spoken to in depth, they must exist for their interlocutors, share an experience with them' (Jamoulle, 2004, *our translation*). Jean-Pierre Olivier de Sardan adds that 'the prolonged presence in the field and the multiple interactions that ensue between the researcher and the local actors produce "silent" effects that cannot be reduced to corpora, interviews, more or less "objectifiable data", nor to spectacular encounters or emotionally "charged" scenes, but which nevertheless express the gradual acquisition of at least a partial mastery

of the codes, uses and logics (representational and pragmatic) of the group studied' (Olivier de Sardan, 2000, *our translation*). The subjectivity of the researchers – sometimes denied, or even banished in the life sciences – is thus assumed in the CRIM-BIODIV project, in the tradition of research borrowing from ethnography, and is elaborated through a systematic analysis of the affects felt by the observers and the affectations that run through the survey relations.

This methodological framework already sheds light on the misunderstandings - sometimes paralysing, often heuristic – that interdisciplinarity between the human sciences and the life sciences entails. We quickly noted a differentiated approach to the way in which the case studies were considered a priori in each of the disciplines. Although the interdisciplinary dimension of the CRIM-BIODIV project is undoubtedly the originality of this project, it also leads to a confrontation between two diametrically different methodological approaches between the so-called 'hard' and 'soft' sciences.

Through this encounter, the methodological shackles that shape our observations are questioned. In and through the life sciences, case studies are seen more as experimental devices aimed at generalising results. On the one hand, this involves describing the context of the study, the environment, the phenomenon or the species observed, from the mapping of transboundary ecological corridors to the study of enzymes secreted by cellulolytic bacteria in the soil. This description is formed by means of macro and micro recognition tools, classification works, quality or quantity indicators, and observation grids that make it possible to describe the nuances and compare them a posteriori. It also involves studying the effects on the environment or on the species, by describing the descriptive variables of the environment and the effects, making it possible to understand the explanatory pattern of a global phenomenon. For these purposes, what we can learn from statistics makes it a valuable tool: one must be able to prove that the part is representative of the whole, in order to extrapolate the results. These dogmatic constraints and the quest for scientific rigour always entail the risk of restricting the comprehensive view. The trap of the experimental device as the only guarantee of scientificity always runs the risk of distorting the living world by retaining only what is explained and reproducible. It appears that researchers in the life sciences are well versed in the exercise of fine description of the world or comparison beyond similar appearances in order to better understand the diversity, nuances, complexity and interdependence of living beings. At the same time, the observation system must be absolutely controlled in order to avoid any variability or any external polluting factor that could distort the measurement tools. The scientific approach therefore tends to model a living material, which is inherently changeable. Researchers in the life sciences thus seek evidence through the scientific rigour of the approach in order to support an assertive discourse in all objectivity. Intuition or doubt, if they are important stages in the process, must be objectified as soon as possible for the one, and resolved for the other in the process of study and the production of knowledge. The question that arises is whether this process may lead to an (over)valorisation of 'irrefutable' approaches and elements of observation: for the observation of phenomena, quantitative measurements take precedence over qualitative evaluations; modelling allows for reproduction and verification; the justification of descriptions, the relevance of measurement tools and the control of parameters is indispensable for rigorous explanation.

On the other hand, the human sciences offer more flexibility in terms of the extreme variability of social representations and human actions (individual and collective) than in terms of situated scientific interpretation. The approach is thus based on a counter-intuition: the important place left to subjectivity and the qualitative description of the social allows us to understand the social world but above all its variability and intangibility. This view, occasionally described as illegitimate (Lantz, 1985), seems to be shared by the human sciences, including criminology: understanding the social world requires the linking of different points of view. Moreover, criminology is a transdisciplinary human science in itself since it borrows methods and theories of knowledge from other disciplines (political science, sociology, psychology, law, history, etc.). This 'discipline' – or field of study for some (Pires, 1995) – therefore has no real epistemology of its own and is composed of codes from other human sciences. The epistemological rupture, initiated by G. Bachelard (1977) and made popular by P. Bourdieu (Bourdieu, Chamborderon, Passeron, 1968), thus reflects the need to move away from immediate knowledge and raw intuition in order to construct a relationship of strangeness – sometimes artificial – with the object studied in order to produce a rigorous scientific interpretation. Nevertheless, like all the human sciences, criminology is interested in the social world and struggles; in the case of a study on the environment, this means establishing a 'naturalistic' description of the world (in order to shed light on the environments studied in their botany, mineralogy or zoology, for example). It should be noted that more and more scientists from both disciplines, much to the dismay of A. Comte or C. Levi-Strauss, are calling for narrowing the supposed gap between 'hard' and 'soft' sciences (de Certaines, 1992). Within the framework of the CRIM-BIODIV project, it is through constant interdisciplinary dialogue, rather than importing methods or epistemologies, that we have decided to solve – or attempt to solve – the equation required to study biodiversity harm.

'Since multidisciplinary, interdisciplinary or even transdisciplinary work is required in the environmental sciences, it seems that this multiple component is part of the very essence of what these disciplines are' (Létourneau, 2008, *our translation*). Indeed, taking an interest in the environment - in this case, through biodiversity – as well as in the reaction to attacks on it, quickly leads to the observation of the narrowness of the sciences seen as isolated disciplines, but also, and above all, to the shackles imposed by the disciplinary viewpoint alone. The specialised language focuses, on the one hand, on the characteristic facies of an environment, the bioaccumulation of pollutants or biotope disturbances, and on the other hand, on deviant behaviour, incivilities, public environmental protection policies or the differential treatment of illegalities. Case studies can therefore be described and analysed in very different ways, depending on the observer. In other words, in a (barely) caricatured way: a biologist will describe the living world; a criminologist will describe the social world. A biologist will try to unify observations through a factual description of the natural parameters studied, whereas a criminologist will aim to transcribe the greatest diversity of observations of these same parameters. One will try to limit the variability of the observation, the other makes it the object of study.

If there is one element common to all views, one that even precedes the naming of the research object, it is the act of description. The detailed descriptions of things for what they are - description of the landscape, of the environment, both living and non-living; description of species and their interactions, whether visible or not; description of the impacts observed; description of their genesis (from the conditions of their emergence to their outcome); description of the representations of the actors involved, etc. – constitute the primary and common form of observation and analysis. The description becomes the common language, a kind of basis for discussion and interdisciplinary synergy.

3.2.3. The heuristic discomfort of interdisciplinarity: from crime to transformation, through harm

By wanting to focus on harm to biodiversity, the human sciences are undermined in their object - since it is no longer a question of the social world – and the life sciences are challenged in the subjectivation of the behaviour studied – it is no longer a question of the living world. This is even more true in a criminology research project where, in the end, it is no longer a question of crime(s).

Taking an interest in environmental damage leads to (re)questioning the contours of criminological science, following the example of the reflections that animate green criminology (see above). If taking biodiversity harm as a scientific subject thus disturbs the criminological discipline, the same applies to the life sciences, in this case biology. The definition of biodiversity, in this framework, is separated from the human component and is filled only with organisms, plants or animals, which do not make up the social world. What happens when, from a legal point of view, there is nothing (or so little) to declare? Where a legal eye would question the law through its various translations, where a criminologist would look for transgression, a biologist stops at the landscape or the species and describes it. Transformations of the earth are then revealed. Often slow, sometimes invisible at first glance, sometimes blatant and obvious, these transformations inform us about our very object: certainly not the crime and its normative flavour, perhaps not even the violation, but the transformation of the living. The life sciences remind us how important it is to take into account the description of beings and biotopes, the history of the locations studied, as much as the normative codes and scientific knowledge.

This narrative of the CRIM-BIODIV research has sought to show the obstacles and heuristic contributions when two visions are confronted. On one side, the positivist vision of case studies in the life sciences where the case studied should bring forth a factual description of the environment or the explanatory analysis justifying the representativeness of the whole by just a part. On the other side, the circumspect or subjectivist vision of case studies in the human sciences where the analysis is lost in the excessive monographic description that is only valid for itself. Even though each researcher sometimes has the impression that the ‘other disciplinary field’ has already or better dealt with the elements that appear in the process of research, or feels they have to get used to a different

disciplinary vocabulary and find a way to communicate, this research project makes it possible, above all, to note the absence of bridges between the life sciences and the human sciences.

While many researchers see transdisciplinarity as an ideal in the production of knowledge, *i.e*. the highest level of cross-fertilisation and disciplinary sharing (Resweber, 2004), or even the very condition of knowledge and the production of knowledge (Létourneau, 2008), the research project we wish to report on here is more modest, simply examining the conditions for an interdisciplinary dialogue on the study of damage to biodiversity. This interdisciplinarity is seen above all as an opening to the frame of reference and to the viewpoint of other disciplines, something that moves a studied object beyond a single disciplinary field (Nicolescu, 1996). It is not to be confused with multidisciplinarity – seen as 'the addition of disciplines, without any real interaction between them' (Darbellay, 2005, *our translation*). In the CRIM-BIODIV project, the disciplines intend to intermingle, or at least interact, without necessarily keeping their own autonomy (but without denying it either). Thus, it is a matter of constantly re-examining one's presuppositions with regard to interdisciplinary confrontation in order to support a 'co-construction of knowledge that literally crosses the constituted disciplines' (Darbellay, 2005, *our translation*).

Interdisciplinarity requires a significant investment in terms of time and energy, but also in terms of accepting discomfort – diving into 'foreign' literature, dialoguing without understanding each other, etc. The aim is not to achieve complete appropriation, but to integrate certain elements of knowledge and views that feed an interdisciplinary approach to a studied object. For the researchers of the CRIM-BIODIV project, it is a question of adopting a posture of openness and connection – in the name of a method of permanent '*bricolage*' (Lévi-Strauss, 1958; 1962) – and of 'ecologising' one's own disciplinary anchorage (Morin, 1986) by taking into account contextual elements and the multiplicity of conditions for understanding and explaining the world. These connections are not new –a lot of interdisciplinarity can be found even within the human sciences or the life sciences – but the bridges between 'soft' and 'hard' sciences seem both rare and sometimes undesirable. There is still a form of orthodoxy on this point that is hard to break because it requires the acceptance of both internal and external questioning of one's own disciplinary field. In this project, this requires a relationship of exchange and cooperation, and critical sharing.

P. Charaudeau (2010) identifies three 'weaknesses' in an interdisciplinarity in which all parties agree on the complexity of social phenomena and the need to cross-reference their views. Firstly, openness to dialogue across a variety of disciplines must not cause researchers to (re)fall into a form of essentialization of explanatory analytical models – that is, models with -isms: structuralism, interactionism, economism, etc. – which would lead to an 'intellectual totalitarianism' in the name of interdisciplinarity. Secondly, interdisciplinary modesty requires that the exchange between disciplines and attempts to integrate disciplinary knowledge refrain from supporting the idea that the objects studied are better analysed, more complete or exhaustive. Finally, the trend towards interdisciplinarity should not suggest that the scale or complexity of the phenomena studied does not (and will never) allow a valid scientific view from any of the disciplines involved. The biological or

criminological perspective alone undoubtedly leads to the production of fertile knowledge. The author adds that 'it is also true that we must fight against the confusion of a wild, or at least unreasoned, multidisciplinarity, which would present itself as the only way to apprehend the complexity of the world, and which would obscure the need to resort to the rigour of one or other discipline, the only possibility of critically discussing the results. It is true that we must fight against this other tendency to take refuge in localism, in the name of a certain authenticity, which is very useful for empirical description, but which does not enable a critical approach to social phenomena' (Charaudeau, 2010, *our translation*). He thus argues for a 'focused interdisciplinarity' that aims both to preserve the epistemological rigour of a discipline – of each discipline – and to confront and articulate the disciplines between them.

In the end, we are invited to discuss cross-cutting concepts. Taking an interest in the anthropocene, for example, allows the meeting of life sciences and human sciences. It is a period that calls for interdisciplinary dialogue. Understanding the impact of humans on the environment requires a combination of descriptive life sciences and interpretive human sciences. We have seen that an interest in environmental (re)actions leads to a necessary revision of criminology, but above all to the discomfort of criminologists who take up this object. The fact of being interested in environmental harm disrupts the object of criminology itself and thus fundamentally shakes its already fragile epistemology. In a similar movement, the fact of being interested in the social actors surrounding environmental damage alters the presuppositions of the life sciences. It is a question of resituating a scientific object in its global and social context, through emotion and the senses rather than through reason and form. Thus, there appears to be a need to rethink criminology and to open the life sciences up to social aspects and contexts. This evolution goes hand in hand with a more inclusive thinking of the relationship between humans and nature.

3.3. Some issues of research methods and ethics

Two methodological issues deserve to be shared briefly here.

Firstly, an issue related to the identification of the researchers: being identified as an environmental defender (Canopea) or as a criminologist (NICC) has a significant impact on the reception of requests for interviews and investigations by the field actors. We had to opt for a research presentation strategy and demonstrate a high degree of reflexivity regarding the data collected.

Secondly, there was the issue of anonymisation and confidentiality: many cases (and possibly individuals) were easily identifiable due to the specificity of certain situations, acquaintance among the actors and the size of the country. In addition, some of the information collected and analysed was extremely sensitive. We therefore subjected each of our cases to a very strict anonymisation process; we made restrictive choices about the elements revealed in this report; and we decided to reduce the case studies to summary notes. A private seminar was also organised to discuss these issues.

Consequently, all names (cities, places, individuals and companies) have been changed. In addition, the bibliography refers only to scientific literature. Press articles and grey literature are not referenced in full. Also, some elements have been modified (dates, legal names, exact titles of administrative instances, etc.). In addition, a certain number of elements have been omitted from the case analyses in order to guarantee, as far as possible, the confidentiality of the people met. We are aware of the limits of this formal anonymisation – some of the cases studied remain easily identifiable (which explains the desire not to reveal the complete case studies in this report) – but it nevertheless makes it possible to protect our sources and to prevent this report from appearing when a name is typed into an online search engine.

3.4. Building the tool: methodological considerations

The tool subproject was devised in three distinct stages: design (defining and setting up the tool), testing and evaluation (of the tool and its impact on users). These three stages are presented and outlined in a more operational way below.

3.4.1. Designing the instrument

Identifying the needs

In order to ensure the sustainability of the tool, exploratory work was carried out to identify the needs of future users and 'hinge' actors (associations and collectives). This resulted in a clear definition of the tool and its limits. The needs were identified in several stages:

Summary of the state of the art by region

This summary aimed to define the main components of existing tools and to draw up a report of the current situation: how much redundancy is there and what is still missing? The resulting assessment served as a breeding ground to discuss needs identification with the actors on the ground.

Summary of meetings with actors on the ground

The meetings with actors on the ground were mainly carried out through a survey of a particular group of actors: associations and collectives. Representing the various aspects of biodiversity preservation and protection, they act as 'hinge' actors (see Figure 1 below), establishing a link between people and public authorities, between field observers and administrative/legal/political procedures, tools or decisions. As a result, they cover a wide variety of actions (but also opinions, objectives, people and places) related to the issue.

Figure 1 – Illustration of the federative and pivotal role of collectives and associations between citizens and public authorities

This exploratory research focused on the environmental organisations' activity in the three regions by setting up meetings with the six organisations that primarily support response to harm, namely: BBL – Canopea, Natuurpunt – Natagora and Vogelbescherming – LRBPO. Meetings with other stakeholders suggested during these first interviews were organised afterwards.

3.4.2. Developing the tool

The information collected in the previous stage enabled us to define the objectives and limits of the CRIM-BIODIV tool and to facilitate its development. This took place in various stages:

- Design - defining the different components of the tool (contents, approach and format)
- Development of the tool - technical support for the content writing and tool formatting

These stages were completed with the input of subject-matter experts in order to ensure the quality of the contents and the layout. Canopea's communication team and several specific mission managers with a wealth of experience in the field were among those consulted.

3.4.3. Testing the instrument

The developed tool then had to be tested by its future users. This test phase took place in a two-step process: the tool was first tested by mission managers in our organisations with a view to gathering initial feedback and making improvements. The adapted version was then shared with a variety of end users: environmental organisations, individual users, etc. to ensure its proper functioning before the final release.

3.4.4. Evaluating the instrument

The last phase comprised two levels of assessment. The first level entailed an assessment of the tool in terms of its form and its use. The feedback from these tests served to implement suggestions for improvement and to ensure the sustainability of the tool in terms of quality and ease of use. The second level aimed to assess the impact/influence this tool could have on the behaviour of its future users, and its ability to make a difference for the issue. This stage was approached as a retrospective discussion about the whole process.

4. SCIENTIFIC RESULTS AND RECOMMENDATIONS

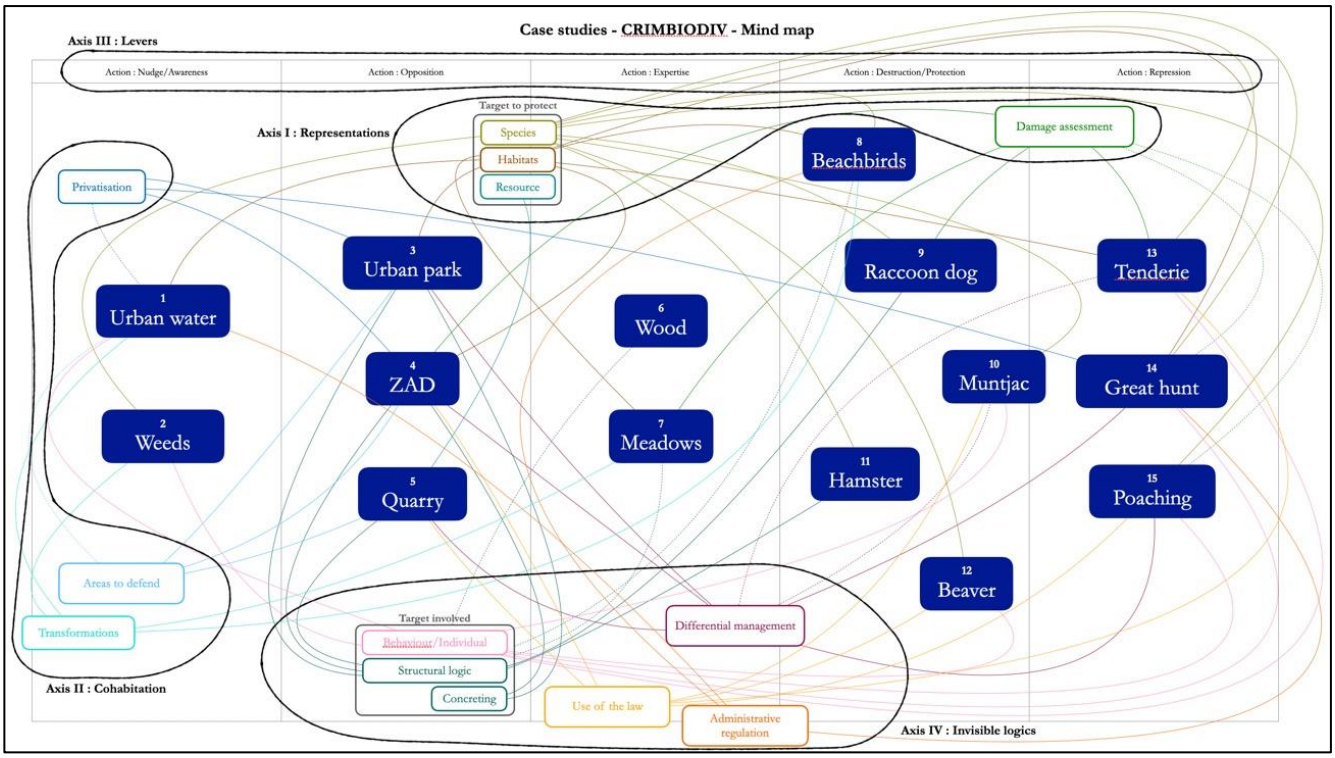
As the CRIM-BIODIV research project is based on case studies, it is important to start by a brief presentation of each one. These presentations are extremely limited here, but each case has been the subject of an extended research note, with its own analysis. We cannot reproduce these analyses *in extenso* for pragmatic reasons – the report would triple in size – and above all for reasons of confidentiality. Indeed, most of the cases, and even the actors interviewed, are easily identifiable because of the specificity of each case, the singular contexts and the limited territory studied (Belgium). Each case will be presented here following the same structure: a narrative presentation of the case (‘once upon a time...’), a description of the empirical material and the chosen analytical perspective, and a statement of the main issues arising from the analysis.

4.1. Synthetic notes on the fifteen case studies

Here is the list of cases that will be presented just below, followed by a mind map that illustrates their organisation and articulation. A transversal analysis will follow.

1. ***Urban water area under surveillance****. From drying up to nudging*
2. ***Urban weeds****. The bourgeois revaluation of the city*
3. ***Planning projects and an emerging landscape***
4. ***From defence of a natural area to its deforestation****. Law and direct action as shared arts of resistance*
5. ***Water or stone?*** *From a neighbourhood dispute to a controversial change in environmental regulations*
6. ***The forest, its faces, and the legislation that affects it***
7. ***Unexpected harm.*** *From permanent grassland to Christmas trees*
8. ***Industry and biodiversity.*** *When David was born in the palm of Goliath*
9. ***Raccoon dog.*** *A quiet troublemaker requiring eradication*
10. ***Muntjac deer.*** *From the pleasure of hunters to the damage of polygamy*
11. ***European hamster****. (Too) risky reintegration at high expense*
12. ***The ecosystem engineers.*** *What harm?*
13. ***What is the value of nature?*** *Difficulty in assessing the quantum of ecological harm*
14. ***Great hunters, power and administration.*** *From the bracelet to the muzzle*
15. ***Stories of poachers.*** *'Petty' crime and heavy sentences*

These fifteen case studies are structured together (see mind map below). First, they can be divided into a grid according to the actions or reactions provoked by the damage to biodiversity: preventive action; opposition to a destructive project; implementation of an expertise on the destruction (environmental appraisal); environmental protection action; or repression of harmful behaviour. Then, these case studies respond to each other and are organised around cross-cutting themes, depending on the target to be protected (a species, a habitat or a resource) or the target of the action following the identification of the damage (individual or collective behaviour, or even societal development); depending on the issues revealed by the stakeholders (property issue, defence of sites, transformation of areas, problem of damage assessment, issue of mobilisation of the law, etc.). The weaving of links between the different case studies has enabled us to bring these themes together in four analytical sub-sets that will organise the transversal analysis.



Before going on to the transversal analysis, we will provide fifteen synthetic notes – one per case – which show the identification of the case, the empirical material and the focus of investigation in the individual study of each case.

Case study #1

URBAN WATER AREA UNDER SURVEILLANCE

FROM DRYING UP TO NUDGING

Pressures around a popular private water area

Once upon a time, in a modern city, there was a water area that was used by living beings, both human and non-human. A rich flora and fauna have settled in the pond and its surroundings: migratory birds, fish, shellfish, aquatic plants and vegetation. Fishermen are attracted to this water area, where locals, students and visitors also come to relax. The water body is located on private property. It has been developed as a storm water basin and fishing pond. Even though private, the site is nevertheless accessible to the public and the path around it belongs to the City. Some of the urban water flows into the pond: the wastewater goes to a sewage treatment plant and the rainwater, which is usually clean, flows into pond. But traces of pollution are regularly observed in the water area. Fingers are pointed at so-called uncivilised people who throw waste such as cigarette butts into the city's rainwater drains, market traders who also throw used oil into the drains, etc. while the administrative police regulations prohibit such waste in the sewers. Faulty house connections to the sewers are also blamed for water pollution. Several actions have been undertaken to conserve the biodiversity of the water area: the water has been drained and a behavioural incentive campaign (nudging) has been initiated jointly by the City and the private owner; it consists of putting up 'Don't throw anything, here begins the pond' signs near the drains. At the same time, there have been no criminal proceedings but administrative sanctions are occasionally imposed by the City, the difficulty being to catch the uncivilised offenders in the act. The surveillance of the site is carried out by a forest ranger paid by the owner, the municipality does not have an agent trained to intervene in environmental matters and the police only come in the event of major incidents. In this context, how to avoid repeated water pollution?

Empirical material and analytical focus

The press, particularly the local press, was analysed to identify the cases of water pollution that have occurred over the years, as well as the actors involved who have sometimes expressed themselves extensively in the press. Various on-site observations were carried out including one during an official site visit and five interviews were conducted with a representative of the site's owner, with a member of a fishermen's association, the sanctioning officer and two aldermen of the City.

The material was analysed to highlight the different types of damage to biodiversity and the type of reactions to which such damage gives rise. For the present abstract, the focus was on pollution of the water of the pond and not on other damage to biodiversity observed, such as noise pollution or the disputed stocking of the pond with certain fish species.

Protecting collectively rather than punishing individually

The right of public access to nature is not recognised in Belgium, unlike in some Nordic countries where everyone has the right to roam and enjoy natural spaces regardless of their land status (Girault, 2018). Despite this, the private water area studied is accessible to the public while being regulated in certain respects, by the owner as regards fishing (prohibited at the time of research) and by the City as regards the consumption of alcohol in the vicinity and the presence of minors beyond a certain time.

The pond was not originally considered as a place specifically to be protected for its biodiversity. Over time, more attention has been paid to biodiversity and a biodiversity monitoring was set up, in a context where the pollution of the pond water is visible (floating objects on the surface, foul smells...). Criminal law enforcement has never really been thought of as a solution to protect the biodiversity of the water body but awareness-raising actions have been carried out tirelessly: information posters, warnings from the forest ranger, etc. The threat of criminal prosecution was raised in the press but never implemented. Behavioural incentives were then mobilised. On the initiative of the city and the private owner acting together, a simple warning, without any repressive threat, was disseminated in the City, by means of placards 'Here begins the pond'. They could have written 'Here begins the sea' like other plaques that are being scattered around the country but the sea is far away… The pond, you can see it from the City.

The aim of the visual message is to influence the citizens' behaviour directly by thwarting at the last moment any action that could lead to pollution. While some literature describes this type of action as nudge, in criminology it is a form of social control (Bozzo-Rey, Brunon-Ernst, 2018, 7). Three conditions are necessary before one can speak of nudges in Thaler and Sunstein's perspective (Thaler, Sunstein, 2010): the action must aim to modify the behaviour of individuals by changing the context in which they make a decision, these individuals must have the possibility to not submit to the behaviour expected, and the expected change in behaviour must be positive for the person submitting to it (in other words, it cannot be an operation whose aim is purely commercial) (Bozzo-Rey and Brunon-Ernst, 2018, 9). In the field of the environment, nudges are credited with a certain potential to consolidate, within an overall environmental policy, enforcement measures and awareness-raising measures. Incentive measures thus constitute a third path, complementary to the first two traditionally implemented (Centre d'analyse stratégique, 2011). In the observed City, the impact of the different paths has not been evaluated.

Different modalities of biodiversity protection are implemented here in a concerted way by the different actors (private owner, City but also inhabitants' association). Only one actor seems to be excluded, the fishermen, their interests being undoubtedly too distant, even incompatible with those of the other actors. The rejection of repressive action seems in fact a non-choice: the criminal authorities do not invest in environmental offences (there is an agreement between the public prosecutor's office and the City that the City will deal with these offences) and there are no

administrative agents in the City competent to record such offences with a view to administrative sanctions. This leaves only awareness raising and behavioural incentives.

The place of the pond in the City and the attachment of the population mean that all citizens are its guardians. This feeling of 'common responsibility' has been reinforced by the 'Here begins the pond' campaign, but also by the drying up of the water area, which always causes a great emotion among the population and is reported in the local press with a lot of photos. These dryings have made the biodiversity issues visible and are also awareness-raising operations in themselves. So the proximity of citizens to the area to be protected in terms of biodiversity, in this case a water area, is an essential element to be considered.

Case study #2

URBAN WEEDS

THE BOURGEOIS REVALUATION IN THE CITY

Pavement flowers, or how to enhance urban greenery

Once upon a time, there were a few achillea, lichens and other celandines that a group of citizens were interested in observing and better recognising. On the basis of municipal initiatives or through inter-associative partnerships, urban walks are organised and offered to anyone who registers. A guide explains the particularity of each city plant encountered, offers an identification booklet and makes the population aware of the importance of urban vegetation. This awareness-raising – inspired by neighbouring countries and implemented in various ways depending on the location and local associations – goes hand in hand with a twofold change in regulations: firstly, abolition of the obligation to weed the pavements; secondly, a ban on the use of pesticides in the city in question. It is also part of municipal initiatives to green the city: installing flower beds in the streets or climbing plants along the facades.

In any case, awareness campaigns and urban greening initiatives are emerging and multiplying – sometimes supported by the regional administration, sometimes by associations promoting the environment or municipal authorities; sometimes in partnerships between these different actors). This case study looks at this revegetation of the city and the conditions for its acceptability.

Empirical material and analytical focus

In the framework of this case study, we participated in an awareness-raising walk on weeds in the city, and we collected some documents. The empirical material was supplemented by three interviews with people responsible for setting up and/or coordinating citizen awareness campaigns for nature in the city (one at the level of the regional administration, the other two at the level of the municipalities). Finally, various reports and public documents were collected.

The main axis of analysis for the study of this case relates to conditions for the success of awareness campaigns and urban greening actions. We have deliberately left out an important issue here, namely the link between these positive policies and actions to repress behaviour that is harmful to the environment.

Need for compromise and increased resonance in privileged neighbourhoods

In addition to the differences between the actors we met regarding the origin of citizen awareness-raising actions, they all explain their motivation by the need to promote a different vision of the city than the one promoted in the dominant social representations of the city marked by order and

cleanliness (Jeudy, 1991; Segaud, 1992; Dubost, Lizet, 2003) or by an 'institutional and standardised vegetation' (Blanc et al., 2005), *i.e.* a vision of the city opposed to the vision of the countryside (Ghorra-Gobin, 1997). From the point of view of urban biodiversity, the promotion of flowers and spontaneous plants is based on several environmental observations, including the importance of 'ecological corridors' (see in particular: Bergès, Roche, Avon, 2010) that are important for conserving urban entomological richness by extending the range of each species, which thus moves from one vegetated point of interest to another. However, the lack of inter-municipal consultation seems to lead to a contrasting situation: the creation of ecological hotspots, but also of typically urban discontinuities.

In the implementation of these efforts to (raise awareness of) urban greening, everything is a matter of compromise: compromise in the message sent, which must touch the hearts of citizens; compromise in the type and nature of greening, which must remain acceptable; compromise linked to the vision of the city at the service of humankind.

Firstly, the people in charge of urban greening policies explain the need to convince citizens by focusing awareness campaigns on the register of emotion. Indeed, we notice that emblematic species – the sparrow, sometimes the bee – receive more attention from citizens and local associations. The regional administration, which explains that they base themselves on objective environmental data collected by specialists, then decides to focus their communication on emotion, even (and more so), for 'weeds'. This discourse can be found at a more local level, where the actors sometimes evoke an 'anthropocentric syndrome of the emblematic species' that does not always resonate with naturalist or ecological considerations.

In addition, the people responsible for urban vegetalisation actions explain to us the 'right balance' to be found. Indeed, when uncultivated grass is introduced in green spaces or areas, this sometimes generates numerous complaints linked to the feeling of abandonment of public spaces by local authorities. A bioengineer recruited specifically to set up vegetalised spots in the city explains that his skills are largely under-used, as his daily work consists more of making nature acceptable in the city than of making the city truly more welcoming to nature. It is therefore a question of adjusting information (by integrating explanatory panels), the size and clear demarcation of wasteland, the aesthetics of green spaces or the temporality (closing parks at night is justified not only for safety reasons, but also so that nature 'can rest'). This compromise, combined with the previous one, shows that it is indeed social factors – citizen adhesion in the first place – that predominate over strictly environmental or technical factors in the success (or not) of projects to restore biodiversity in cities (El Jai, Pruneau, 2015).

Finally, the real challenge of cohabitation linked to resilient nature is to persuade urban citizens that the city must be shared with all forms of life. However, the argument of defending biodiversity 'for its own sake' does not always resonate with inhabitants. Consequently, environmental policy strategies are implemented by insisting on ecosystemic dependence – an argument that is much better integrated when the services that the environment provides to human practices are mentioned. These

awareness-raising campaigns – sometimes accompanied by nudging techniques such as stubbing out cigarettes in the right place or depositing rubbish outside green spaces – are therefore often presented as a necessary compromise to be accepted. A manager of an urban greening centre explained that it was impossible to defend nature 'for itself ', that would require a real step-aside for humans or even organising their absence. This would be tantamount to a management 'in the style of Thanos' where humans would withdraw to make room for nature.

In conclusion, we note the strong link between the relationship to urban nature and gentrification. Indeed, urban greening only becomes a priority in the most privileged communities, where the emphasis can be placed elsewhere than on providing decent housing and attractive shops, where people often own their building facade. The acceptance of biodiversity – in this case in the city – is therefore strongly linked to the social level of the inhabitants, leading to a differentiated management of urban spaces with regard to the environment. In this context, the most predictable scenario is that of an 'ecological dualization' of the city, *i.e.* an alternation of blocks with high environmental quality and neighbourhoods with low environmental quality (Emelianoff, 2007); ecological inequalities are grafted onto the social inequalities that structure the urban tissue.

Case study #3

PLANNING PROJECTS AND AN EMERGING LANDSCAPE

Case presentation

It was at an information meeting organised to take place one summer's day that a real-estate firm set out to reveal a mega-project where it wanted to build several hundred individual residential plots. The overall planning concept was envisioned by its developers as what they call an *'eco-quarter',* extending over an area of several dozen hectares. This is a firm that started out as a sizeable industrial undertaking. Its portfolio of properties stemmed primarily from land it bought last century as a tertiary part of its undertaking. And now, it was transforming itself into a property firm in the niche development of *eco-quarters*.

Its public presentation was a first lifting of the veil on a project whose current state is a confluence, in which a variety of moves all come together to be viewed 'as is'. To trace the story back in time, we must return to the 1980s, with the first tentative steps faced down by objections from the political majority of the time. Nearly 30 years on, the firm was now establishing its master plan, whose objective was to set out a *development strategy for these land areas.*[7] Among the plethora of design firms that were mobilising on development, one had set itself the mission of *nurturing grassroots involvement around the master plan itself*.[8] Later, a committee of local people would portray the move as gatherings of the *good and the great of the region*, speaking of it as a conversation from which all compromise had been banished.

That day's project presentation evoked *impassioned reactions.*[9] A few days later, locals convened to form a collective bent on opposing the plans; for the purposes of this study, we call them simply *collective A*. The group saw the layout as *anti-social*[10] in concept. They pointed to mobility issues and cited problems that could entail a loss of biodiversity. From the outset, the initial phase of the public inquiry attracted *complaints and comments from opponents in their hundreds.*[11] Before long, a regional planning association, which we here call *association B*, took a look at both the building project and the comments raised during the public inquiry. In the December, it issued a town and country planning study in which the vast subdivision concept was subjected to detailed analysis. It went on to set out its *alternative planning vision*, extending over a huge expanse, which included the area that was the object of everyone's desire. The many planning proposals comprised within it included one to *procure the existence of a grand metropolitan park* out of an existing area covering nearly 400 hectares. It was a tract extending across a number of local authority areas and, as proposed,

[7] The expression used in the master plan documents as made available to the general public.
[8] Quoting the designers on the presentation page of their website setting out the participatory approach.
[9] As related to us when talking to the metacollective.
[10] The term is taken from leaflets circulated by collective A.
[11] Information taken from the metacollective's website.

comprised contiguous plots of undeveloped land. The incipient *grand park* was named after the river that crosses the land concerned by the *eco-quarter* project.

As autumn began, association B presented its study to a dozen or so locals, of whom a number were already in a group that had been formed to oppose another project on adjacent property, which we will call collective C. Although primarily aimed at giving insight into its planning study, the meeting organisers sought to plant the seed of an idea they hoped would gain in stature: a metacollective. A few days later, the metacollective was born. It brought together collective A, association B and collective C. Its representatives defined its objectives as being *to uphold the prospects* already *set out in the planning study,* including creation of *the Park.* The metacollective therefore adopted the name given to the *Park.* In a bid to stabilise the competing *tug of war* between *the developer and the authorities*, they decided to announce the prospects for the town and country planning side of things. This entailed some of its members embarking on a *vast mapping and photographic survey* of the site, as well as organising public presentations for local people and then council officials, concluding with a site visit. Over time, the collective drew burgeoning support by strategizing predicated on their aim of addressing, together, *head, heart and legs*, with the objective of combining *critical intellectual* thinking with what they took to be sensitivity in their approach.[12]

One year in, the group couldn't believe the success they'd garnered. Tensions arose among the three founding groups. As its membership grew, so too did the problems with its fragmented identity. Collective A militated towards the notion of rejecting the whole property development outright, whereas collective C was keen to draw support for creation of the metropolitan park. Officially, the region's association B rejected the project. Two years after officially submitting the project, the developer applied for a building warrant. In response, the metacollective circulates a standard letter of opposition through multiple channels of mobilisation. Despite a crescendo of galvanised support, there was mounting discord among the metacollective's founding entities. Collective A stood fast on its position of 'no to the project', whilst collective B was attracted to seeing the *Park* brought to fruition as an amenity: visions that coexisted under the aegis of the metacollective from day one.

The public inquiry ended and, a few days later, the local authority advised that the developer was withdrawing its warrant application. The metacollective had achieved one of its objectives. Whereupon, collective A was disbanded. Now, represented by members of just collective C, the metacollective continued to work towards creation of the *Park*. Subsequently, other property developments, some of them for new *eco-quarters*, occasionally *posed threats*[13] to its existence. Its responses to such threats fed into the *ways and means* by which it sought to uphold its purpose of creating the park (Latour, 2012). Each of these skirmishes, won or lost to varying degrees, edged it towards a particular state of being: as a bastion of green space – the *Metropolitan Park*.

[12] The italicised words in this paragraph come from an interview with the metacollective and descriptions published on its website.
[13] Source: ibidem.

Empirical material and analytical focus

The case studied here rests on an analysis of the full range of activity engaged in by the relevant players (the developer, the designers, and the collectives putting up the opposition). It encompasses planning inquiries past and present, including that assuming a figurehead role in the case. Furthermore, the analysis draws on the variety of dissemination modes that were deployed by those same protagonists, which included things like setting up websites, distributing leaflets, articles in the press, appearances on television, launching petitions, and so on. As an adjunct to this analysis, the documentation has been reviewed, including maps, in which the actual locality is described. In addition, it incorporates views exchanged on the matter between official bodies (mostly council meetings). Added to which, several members of each of the relevant groups were interviewed, and site visits were organised. No response was received from the relevant parties to a request sent to the property company and to one of the design firms asking to interview their management representatives at the time.

In analysing this case, the focus is trained on the emergence of a distinct area within a social group that was, collectively, opposed to a property development project. The aim in that regard has been to look at how perceptions within one and the same place are transformed when their common space gets used as a political tool, given all the divergent views of what town and country planning should be about.

Analysis

Did the green area exist prior to the property company publicising its intention to build the eco-quarter? In its component parts, yes, and in some cases, for several hundred years; in others, for a few decades.[14] Research, to which all the relevant players contributed their efforts, fell short, however, of evidencing (at least explicitly) that it had ever constituted a complete, functional tract of land. Before the project was introduced the land was regarded as one would view a jigsaw puzzle, with *fields, woodland, gardens, meadows* and so on[15], each having its legal proprietor and particular utilisation. What the development project did was to shine a spotlight on the gamut of this land, gradually bringing to the fore the underlying organic interplay among the various plots. With the alternative proposal contained within the planning study, the functional whole was shown to have properties that exceeded the sum of its component parts. In retrospect, the authors of this work talked about moving, from an impression of *emptiness*; devoid of concrete …, *un-built-upon*; toward *a central*

[14] This information stems from historical investigations conducted by players on the site.
[15] As described on the website set up and maintained by the metacollective.

urban hub … A plenitude of *landscape*, *history* and *philosophy* …. This vision of the land brought together, through their representatives, three groups, all with separate objectives.

The respective identities of the three entities forming the metacollective seem to have been shaped by the relationship each of them had with the green space. Having been set up at the beginning of the protest movement, collective A was mainly defined by its opposition to the property project. Its name clearly alluded to that opposition. Having acquiesced for the time being in the creation of the *Park*, it was disbanded once the building warrant application was withdrawn. Association B played an initiator role. Its people created a space in the collective imagination by redrawing its contours. The *Park* thereby became the means to set the stage for a battle that was yet to be waged. Over time, the association reverted to its overall approach and became more of a regional force for planning proposals. Collective C seemed to see a fabric of nature into which man is woven in an everlasting relationship. Their attachment to the place seemed to spring as much from its geographical proximity to the members of collective C as from any approbation of the proposed *plan* (Callon, 1986) as part and parcel of *a new urban concept*. This interplay with the green space heightened as a quest was conducted, to a pitch that was *manic*, for all and any information that might reveal its history. It was launched by a small, hard core of locals within the collective who, a couple of years down the line, took on the mantel of *alternative* experts. While it was an intellectual construct that connected differently with space, it also fed into outsiders readily being mobilised into action and was itself readily mobilised as a *bone of contention* for successive layers of involvement (Callon, 1986)[16].

Enlisting new *audiences* in this way mounted a *redoubtable front that could face off the political forces in the fray*, and used a number of *devices* (Callon 1986; Dewey 1927). The feeling that a space was emerging in their midst is described here as the factor most conducive to raising opposition. Whether in politics or in our routine existence, *surprise* takes the prize. The metacollective knowingly fed into that with its revelation regarding *the head, heart and legs*. The tie-in to the location was shown to be *transformative*, having, as it did, an effect on the majority of people, who took the view that they were acquainted with the neighbourhoods in question. The transformative aspect here was an induction more to territory that was known, that was familiar from wanderings through it and those to avoid it, than a discovery of some land far, far away[17].

[16] According to an interview with collective C.
[17] Source: ibidem.

Case study #4

FROM THE DEFENCE OF A NATURAL AREA TO ITS DEFORESTATION

LAW AND DIRECT ACTION AS SHARED ARTS OF RESISTANCE

Urbanisation, between economic pressures and public objections

Once upon a time, a natural area was claimed by two entities: economic promoters and environmental activists. The former Wilbur gravel pit on the outskirts of the city of Orville is a symbolic site of the autonomous struggle for the defence of nature. This site – and especially the discord that has surrounded it for several years – is anchored in a particular geographical and demographic context: a strong tension between environmental protection and real estate projects.

On the thirty hectares covered by the former Wilbur gravel pit site, a site of major biological interest of nearly fourteen hectares includes nine interesting biotopes listed by the Region – ponds, exposed banks, sandy grasslands, sandy soils, willow groves, etc. – and at least fifty-four species of rare animals and plants representative of the region's biodiversity, including seventeen protected species.

Calydon, an important public-private group, is interested in this former gravel pit and is presenting a project for the creation of a business and artisanal park. The entire site of major biological interest should be occupied by small and medium-sized enterprises. In a press statement, Calydon anticipated criticism by announcing that 'the biological interest has disappeared over time' and promised to create a nature reserve on the site.

The project for an artisanal zone provoked a reaction from the local residents, who drew up a petition with some 15,000 signatures. A real saga began, lasting almost a year and a half: negotiations and sometimes strong opposition between Calydon, the mayor of Orville and the police on the one hand, and the activists and local residents on the other. On both sides of the front line, the determination was strong but the tools differed. The petition made a lot of noise, so much so that the site was soon illegally occupied. 'Environmental activists' (to echo the terms used by the press and the police) or 'defenders of another world, and in particular of green lands' (to use the words of one of them) settled and occupied the site of the Wilbur gravel pit with a view to setting up a squat with a political vocation: the Orville zone to defend (ZAD) was born. The aim of this illegal occupation was to prevent the destruction of the natural site by the project promoters. After over a year of occupation, the occupants were evicted from the site and the area was completely clear-cut so that the activists would not return; this clearing took place in the middle of the bird nesting period.

Empirical material and analytical focus

The analysis of this case focuses on a key moment: the clear-cutting of the area by the promoters of the development project, following the eviction of its protesting occupants. This focus questions the motivations of each stakeholder as well as the representations, mobilisations and uses of the law by

the actors involved. More broadly, this case study makes it possible to examine the law as a register of action and argumentation in the tensions surrounding projects that affect (or do not affect, depending on the point of view) biodiversity. The empirical material analysed includes a review of the press, public documents (reports, pamphlets, presentations, etc.), and about ten interviews (the mayor of the city, three *zadists*, two representatives of the industrial zoning project, a member of an environmental observatory, a legal advisor and two anonymous sources). Because of the recent nature of this case study, the virulence of the conflict surrounding it and the legal proceedings underway, we focus on a specific moment – the deforestation – and on a well-defined analytical perspective based on the uses of law and/or direct action. In short, the analysis aims to question the modalities of action and reaction of both sides – the promoters of the industrial project and its opponents – insofar as they borrow from the forms of resistance of the opposing side.

Uses of law and direct action

Beyond considerations linked to the evaluation and perception of biodiversity – and therefore to the evaluation of the damage to biodiversity – the debate on the legality of a clear-cut quickly masks the trees that were cut and its consequences (i.e. the destruction of rare and protected species, the suppression of biotopes and habitats favourable to the development of biodiversity).

The core of the tension is visible in the discursive logics, in the way in which the actors seize (or not) the legislation to justify or, on the contrary, to question the legal norms. For example, in the debate between Calydon – which announces that the massive cutting of trees is legal because the agreement of the regional forest management directorate has been obtained (and thus refuses to submit to any compensation) – and an environmental observatory, Sirine, which questions the speed of the clear-cutting operation. This is also a question of vocabulary: 'deforestation' or 'clear-cutting'? Although the terms are usually used interchangeably, they are legally distinct. 'Clear-cutting' is a common term, used in forestry jargon, which means the massive cutting of trees or brush. 'Deforestation' implies – even if it is not precisely defined in the legal codes – a preparatory step to change the destination of the area. In short, deforestation implies that one will not reforest. Therefore, a permit is required for deforestation. According to Calydon, the cutting of trees cannot be described as 'deforestation' in this case, but rather as 'clearing in preparation for deforestation' (for which a permit application was submitted). In the end, this debate – is it a case of clear-cutting or deforestation? – obscures the quantification and qualification of the damage: more precisely, the outcome of the debate will qualify the damage as legal or illegal.

While the usual forms of action differ according to the actors – autonomous struggle and direct action on the side of the opponents of the liberal capitalist model of society; use of the law and police on the side of the economic promoters and the politicians who support them – borrowings from the referential of the opposing side are emerging. These appropriations of the arts of resistance remain limited to a certain extent: the majority of the *zadist* opponents do not recognise themselves in the legal struggle led by the committed citizens; and the promoters of the project are careful to ensure

they are able to justify their rapid reactions by the respect of the legal norms. In any case, the reference frame of the action has an objective of result while the reference frame of the law is an aim to qualify the action. In this movement, it is interesting to shed light on both the strength and the inertia of the law, in that it makes it possible to define what is legal or not. Indeed, mobilisation of law includes the devaluation of actions that go against it – legal action is perceived as less violent (here, with regard to biodiversity) and more legitimate. Also, legal standards, through the inertia of texts, do not follow the changing contours and temporalities of nature (here, nesting dates are set arbitrarily according to the habits of birdlife).

The debate regularly focuses on the question of legality, thereby obscuring the question of 'social harm' or 'environmental damage'. This is a founding debate of green criminology (see: State of the art), almost ontological in this field of research, between the use of the legal or infringement vocabulary ('crime') and the empirical (or empiricist), or even critical vocabulary ('harm'). The question of qualification – is it a crime or not? – obscures the importance of the environmental damage. This movement carries the risk that the judicial truth will support a broader form of truth, erasing the politicisation of institutions and decision-making instances, or the converging interests between the public and private sectors, or the neo-liberal context and capitalist expansion, etc. There is indeed a strong social acceptability of the legal discourse; an important legitimacy is given to the legal argument. Except for the most committed protestors and activists in a process of alter-globalisation, the important thing is ultimately to know whether the project violates institutionalised norms or not.

The legal framework (whether administrative, public or especially penal) – the 'legalistic alibi' (Salle, 2022) – masks the real harm (in this case, the trees cut down; the forced cessation of nesting; the destruction of habitats and species...), but also masks the hidden (or discreet) agenda linked to capitalist development and the economic expansion associated with it.

The question is therefore what value to place on law, on legal qualification, in these circumstances. With the exception of the protesters who are reluctant to use legal instruments, the actors who speak out on this issue see the law as an indispensable (and therefore essential) means of change (or sometimes stabilisation): either it can be used to show how socially acceptable the economic development project is, since it is legally established; or, on the contrary, it can be used to show how harmful the massive urbanisation is to the environment, since it is contrary to the laws of nature protection. Whatever art of resistance is used, the malleability of the law supports the resistance of a position – that is, its solidity and consistency. The vocabulary of legality thus contains within it an ambiguity that can be found in the different meanings of the term 'resistance': a defensive reaction and an inert robustness. At the same time, and perhaps paradoxically, for these same actors, the question of legality is not the essential argument: for some it is economic development; for others it is environmental protection. In spite of everything, there is a form of essentialization, of determination of the very nature of the thing, which takes place through and in the legal battle. And this, however malleable the law may be.

Case study #5

WATER OR STONE?

FROM A NEIGHBOURHOOD DISPUTE TO A CONTROVERSIAL CHANGE IN ENVIRONMENTAL REGULATION

Genesis of a conflict around the use of a natural resource

Once upon a time, there was a rather unusual neighbour conflict between a brewing company and a quarrying group over the use of a natural spring water; the former using it to produce their beverage, the latter seeing it as a hindrance to the exploitation of the rock. By virtue of a deed of partition drawn up in the middle of the 19th century, the water from the spring was recognised as the property of the brewery. The spring is the main source of drinking water in the municipality, and an agreement stipulates that the town is supplied with water from this spring free of charge via the brewery.

A quarry company located a few hundred yards upstream from this source is authorised to exploit the quarry while maintaining a certain floor, a few metres above the water table. This regulatory limit means that the quarrying activity must be stopped in the near future. However, a lot of rock remains below the authorised threshold. The quarry group is therefore considering deepening the quarry and hopes to continue mining the rock. The only way to do this is by pumping down the water level so that the machines can dig deeper, which would inevitably cause the water source to dry up. The brewery company is strongly opposed to the project to deepen the quarry. A veritable saga took place over a period of 15 years, with citizens' mobilisations, countless meetings, communication campaigns on both sides, studies, applications for permits and appeals, etc. During these fifteen years, the same logic was repeated: each of the carrier group's permit applications was granted by the regional authorities, only to be invalidated by the competent civil courts.

This administrative and legal battle is not without its tensions, suspicions and settling of scores. Several testimonies mention employees being side-lined, contracts not being renewed or, on the contrary, promises of hiring and promotion.

Although the quarry group was unsuccessful in each of its attempts – the water source and its exploitation being fiercely defended by the brewery company – the story does not end there. Recently, in a very discreet manner, a change in regional legislation was introduced in favour of quarry companies: from now on, the industrial operator of a quarry will be able to distribute the water it can for dry mining without paying taxes, unlike other operators in the water market.

Empirical material and analytical focus

This neighbourhood conflict over coveted natural resources – water and stone – provides an opportunity to address and question the tensions surrounding economic development projects based

on ecological issues, and the representations of actors from the associative sector, citizens, politicians and the legal world. Is this issue a matter of heritage conservation, a personal battle or a fight to protect biodiversity?

The empirical material analysed includes a review of the press, public documents (reports, awareness-raising documents, public communications from the parties, etc.) and legal documents (court decisions, preparatory work on legislative amendments, etc.), together with eleven interviews with people close to the case (the person in charge of the case within the brewery company and his spokesperson; the lawyers of the same company; a technical representative; the spokesperson of the quarry group; a member of a citizen's committee for the defence of the water source; two naturalists; a representative of an environmental defence association; a political representative). A visit to the quarry was also made.

The angle of approach favoured in this case study is, first of all, that of communication logics. The actors in conflict use multiple tools to inform and raise awareness among the population about the issues associated with this case. The case study will then focus on the latest turning point in this issue, namely the questioning of the regional policy on environmental protection following the recent legislative amendment.

Environmental regulation between discreet reform, political greenwashing and economic pressure

In recent years, the penal protection of the environment has been at the heart of many debates. However, unlike the long and tumultuous discussions on the need (or not) to legislate on the notion of ‘ecocide’ and to include it (or not) in the criminal code, the legislative amendment in question here is taking place in a short timeframe and, above all, is being discussed rather discreetly (almost under the radar of the most attentive observers).

The creation of environmental legal norms is the result of a very localised, bottom-up conflict and is marked by the direction of the action. This extremely rapid legislative change, carried out without much debate, coincides with the urgency felt by the extractive company, whose activities will end if a deeper mining project is not possible. Furthermore, this reform is diffuse and it seems difficult to identify the individuals behind the legislative reform project (the ministerial cabinet did not respond to our requests for an interview). In addition, there is a form of legitimisation of the new norm: the parliamentarians' discourse is unanimous and evokes ‘climate change, ‘periods of drought which are intensifying’, and ‘tensions on the availability of water resources’. Their words seem disconnected from both the short history preceding the amendment – the neighbourhood conflict to which they refer – and the very purpose of the amendment. They emphasise the importance of securing water supplies during periods of drought, but do not seem to be aware (or at least do not show it) that pumping out water from the spring contributes to the drying up of the spring. The preparatory works mention another justification: the reform would be recommended by a decision of the Council of State

in this case. No one objects to this legalistic argument, even though a reading of the judgment shows a Council of State that is far less affirmative than the preparatory documents suggest.

While environmental issues – again, note the questions relating to the creation of a crime of 'ecocide' – are divisive in some assemblies, the micro-reform studied here is welcomed by all parliamentarians. So how can we explain this discreet and diffuse legislative amendment, which was nonetheless passed unanimously? There are many possible explanations. First of all, the subject may simply not be politically significant – not worthy of too much interest – and thus leads parliamentarians to lose interest in it; this seems improbable, however. Or, conversely, it may be a legitimisation that MPs cannot oppose: the 'green' register. From the moment the reform is presented as a solution to global warming in a context of urgency, any opposition becomes impossible. Finally, since this reform aims to promote access to water, to fight against drought (even if we have seen that this argument is fallacious), and to ensure the economic development of the quarry sector, we can assume that the interests of all, although sometimes antagonistic, are met through this reform. This assumption is in line with the argument of Pierre Lascoumes who, in his book *L'éco-pouvoir*, argues that environmental standards are rather the result of compromises between divergent interests, and do not (or not necessarily) constitute protective measures as such. Another hypothesis, inherent to the complex subject matter of environmental law, can be put forward. It can be assumed that this subject, which is extremely complex from a technical and legal point of view, convinces all members of parliament by being made audible through simple, even simplistic explanations. The simplest explanation – just put a pump and a tap where the water used to flow naturally – is more audible than a complex one – the aquifer is a karst system made up of several permeable cavities, from epikarst to karst, which cannot be replaced by a tap; and the regulated chemical concentration of nitrates and sulphates is compromised by a pumping system. Finally, the last hypothesis – obviously not exclusive – is that collusion exists between political, administrative and private actors, and that pressure is exerted by certain powerful private actors – in this case the quarry group – to influence the legislative process. We are far from conspiracy theories – indeed, these collusions are sometimes publicised or even prosecuted – and we have several testimonies or bundles of information that tend to show forms of collusion between the regional authorities and the quarrying group. This case study is thus an opportunity to question the contemporary evolution of legislation relating to the exploitation of natural resources, in its discreet transformations, between environmental protection, political influence mechanisms and neoliberal compromise.

Case study #6

THE FOREST, ITS FACES, AND THE LEGISLATION THAT AFFECTS IT

Case presentation

This case study describes a local conflict over forestry operations at a site situated in a forest. The forest belongs to a local authority and forms a natural habitat typical of the rural area in which it is located.

Given its great biological importance, the site is listed under virtually every sort of protection that Wallonia can offer to this kind of environment. Each of these protections applies to a different part of the site, although some intersect and overlap geographically. As a result of this jumble of jurisdictions, which has been described as *a real green lasagne,*[18] the rules that are applied tend to differ, and each has its own particular legal and official slant.

While out on a walk, a naturalist hailing from the region was struck by notches that had been made in the trunks of several hundred trees in that protected environment. This form of tree marking, called 'wood branding', is a known practice. It is done by a site's management (administration) to identify trees to be harvested shortly. The felling in this case was planned within the boundary of the part designated as a forest reserve. This status is defined in the Nature Conservation Act (*Loi sur la conservation de la nature*) and intended to allow forestry operations to be carried out, provided these do not occasion any loss of *characteristic*[19] or *notable*[20] *facies* (or *outward features*) of existing plant life (Moniteur belge, 1973).

'A forest reserve is a forest or any part of a forest that is protected pursuant to this act with the aims of safeguarding the characteristic or notable facies of the native forest stands and guaranteeing the integrity of its soil and environment' (Nature Conservation Act 1973, part II, sec. 20).

Alerted to the issue, several local naturalists wondered at the choice of the specimens marked for felling and at their number. They were also concerned at the *fragility*[21] of the environment in question and expressed fears of soil compaction. These concerns, which are felt to have not been answered, morphed into growing opposition to the managers that took this decision.

The group of naturalists was quickly bolstered by academics and by local and regional biodiversity protection organisations. This growing opposition homed in on rehashing whether conservation status is relevant, in particular due to the commercial operations it permits. The prime thrust of the group's

[18] A phrase which came up in interviews conducted with the conservation organisations involved and in the media publications in which they have spoken publicly.
[19] A concept drawn from the provision dealing with forest reserves in the Nature Conservation Law.
[20] Idem.
[21] A phrase that came up in interviews conducted with the conservation organisations involved and in the media publications in which they have spoken publicly.

argument was that *excessive, destructive felling*[22] is incompatible with maintenance of the *characteristic facies* required under the act. The group gave voice to this stance on social media, the press and specialized publications. Two petitions were created, one of which garnered over 10,000 signatures, securing a firm base for public engagement, thus taking the debate outside the realm of experts. It also spawned *public controversy* (Lascoumes, 2019). The managers of the site and the public agency that owns it, for their part, set out their counterargument through strictly official channels, contending that the felling is precisely what is needed to preserve the environment in its desired form, with its *characteristic facies*.

In parliament, the government minister with responsibility in the area was questioned about the conducting of such commercial operations, to which the response came that the minister's office had followed proper legal procedure *and was not guilty of any fault in that regard*. The minister did go on to add, however, that it just so happened that a *certain number of species would indeed be negatively affected.*

Despite the many informal interactions, all the actors concerned testify to a '*dialogue of the deaf*' in the institutional exchanges that punctuate this controversy.

Empirical material and analytical focus

This case study rests on an analysis of the full range of communication tools used by the players in relation to the dispute as described – they include press articles, petitions and a host of statements posted on social media. This work is completed by a review of descriptive documents, particularly cartographic, of the places considered, as well as documents written by the various entities involved before the controversy. The applicable laws and parliamentary debates related to the case are also incorporated.

We were given leave to meet with the relevant management. Two interviews were also conducted with opposition members: an academic and a representative from a conservation organisation.

The case is analysed through the lens of each player's interpretation of how forest reserve status is defined in the law. The concept of *characteristic facies* is central to this status. The flexibility of this notion allows the conservation issues and the tensions they raise to be deployed.

Analysis

This case study takes up the expert-level debate in which a local conflict crystallised some wider tensions of much longer vintage. These tensions have complex and multifaceted roots, including the

[22] Idem.

complexity of Wallonia's conservation statuses and the ways in which they are interpreted depending on the interests and status of the parties involved.

This first and foremost highlights the complexity of the different conservation statuses in Wallonia, which are numerous and some of which lack clarity. Here we are faced with a paradox: the site has been granted all the prevailing statuses and quality labels that are going, yet, in reality, has no guarantee of rigorous, enduring protection over its entire acreage. The allusion that has been made in this regard, to *a true green lasagne*, was to be heard on several occasions in reference to a Kafkaesque body of law.

This complexity shapes the manner in which the different statuses are interpreted, applied and enforced, linked to the definitions of these statuses in the Nature Conservation Act and the other legislation that makes up the regulatory arsenal for environmental protection.

The status of *forest reserve* and its founding concept of *characteristic plant facies* are key components in the dispute raging around this site. It figures as a concept that traces the connections between each of the aspects cited by the stakeholders. More generally, the empirical analysis of this concept reveals the way in which they define themselves in relation to the exploited environment.

The word *facies*, which takes its root from the Latin for *face*, is defined as the *appearance, form, or characteristic expression of the face*[23]. This term is used in several scientific disciplines. In botany, in particular, *facies* refers to the *typical appearance of a plant*[6]. More specifically, in plant sociology, *an 'ecological' facies is a set of specific physiognomic characteristics within a plant community*[24]*. These specific characteristics, which are in general highly localised, are used to distinguish original specific features within plant species found in one and the same habitat. Ecological facies are therefore a form of biodiversity within plant communities*[7].Therefore, the marks made on the trunks to prepare for felling, to those who oppose it, become a symbolic disfigurement that heralds the substantive harm that will be caused by imminent felling. The words *disfigurement* and *stigmata* came up several times in the interviews with naturalists and in their articles when referring to previous felling operations that had already left their mark and *damaged the facies*.

These strong words and the fierce debate that followed their use highlight huge differences of opinion that can be seen in the way each entity seeks to define *the characteristic facies* of the plant life on site. These differences of opinion result in different ways of *managing* a (semi-)natural space, perhaps of *commercially operating it*, but also of *caring* for it and ensuring it thrives. The naturalists in this case would brook very little, if any, intervention for fear of disfiguring a natural environment that has already been *mistreated*. In contrast, for the entity managing the site, felling the trees provides a way of looking after the natural environment while also generating income for the owner. From their point of view, it is precisely such cuts that make it possible to keep its *characteristic facies*.

[23] (Dictonnaire, La langue française s. d.)
[24] (Dictionnaire en ligne - Futura Planète s. d.)

Two interpretations of the term facies have emerged – the interpretations of the naturalists and the manager, respectively – *because of*, or perhaps even *thanks to*, the current law's susceptibility to flexible interpretation. At the start of dispute, this meant that there were several different, somewhat contradictory, definitions of one term. This enabled each entity involved to set its sights selectively on just one aspect of the reality that faces our forests. In the end, this means that an institutional body will have to decide: *What form of (abstention from) operations? And which facies has to be preserved?* In this case, coming to a decision means ruling on the legality of the tree felling, as well as taking a stance on what is just for both the humans and non-humans with a connection to this forest. The minister traces this ambiguity, by indicating in parliament that the tree felling is indeed *lawful*, but that there is *no doubt that it will damage the biodiversity of the site*.

Case study #7

UNEXPECTED HARM

FROM PERMANENT GRASSLAND TO CHRISTMAS TREES

Case presentation

This case study examines the infringement in connection with a change in the allocation of agricultural land on a massive scale, from the perspective of a farmers' collective. The four farmers had observed how their agricultural region had transformed over several decades. In the 1990s, they were looking for a career change and decided to work together to set up a suckler cattle farm (for meat production) in a valley in the Ardennes. As they wanted to be self-sufficient in terms of feed, all the food for the livestock, mainly hay and pastureland, would be provided by the farm itself. To make this possible, the farm included some permanent grassland. The term 'permanent grassland' refers to land that has been used for several years to grow fodder grasses. This type of land is generally characterised *by a great abundance of spontaneous plant species in ecological balance subject to the joint effects of the environment and agricultural practices* (Dico AE, 2023). Plots on their farms are scattered over a radius of several kilometres. This arrangement meant they regularly tilled their land, which extends over several municipal districts.

However, over ten or so years, our farmers noticed what might be called a *farmland land-grab* in the region. A substantial portion of the permanent grassland had been turned into Christmas tree plantations. They attested to this type of farming having a long history in the Ardennes in the form of small plots spread around the countryside, which enable farmers to diversify their income. Weeding, like the rest of the Christmas tree farming work, was done manually.

In recent decades, several landowners have invested heavily in this type of cultivation as it is more profitable than agricultural leases. They have progressively terminated a raft of leases for land used for pastures and crop culture in order to plant fir trees. This huge change in land use has drastically increased the price of agricultural plots in the region, making access to land increasingly difficult for traditional family farms. While the Christmas tree plantations have grown in number and in size, the extensive forms of crop growing that existed before have been supplanted by farming on an intensive scale.

The farmers from the collective suspect that this intensification has led to a depletion in soil quality throughout the valley. They talk of soil that is biologically *dead*, of it being forsaken by microorganisms and earthworms. In addition, they are also concerned about a drastic *decrease in indigenous and spontaneous plant diversity* in the patchwork of plots within this large region. They also describe a landscape that is *withdrawing into itself*[25] from all directions, an allusion to the multiplicity of fir farms

[25] In the interviews conducted in French, the actors used the verb 'se refermer' translated here by 'withdrawing into itself'.

in places that used to be home to permanent grassland. The term is a reference to the ecological transformation of an environment that was previously populated with low-growing vegetation and is then colonised by trees, gradually reducing the amount of sunlight that reaches the soil.

When pinpointing the first stirrings of their concern, each of the farmers described not when the trees were first planted, but instead the first time they saw agricultural pesticide sprayers applied on them. They used terms reminiscent of science fiction to describe this machinery that had rarely been seen before the fir cultivation became so widespread around them.

Over time, various events fed into this collective discomfort, mostly related to treatment of the fields with plant protection products. They described the use of sprays that physically landed on them while working on a pasture or affected their livestock reared organically. Cattle's curiosity about machinery makes them particularly vulnerable to treatment.

In one month during the summer, torrential rain caused vast mudslides with disastrous consequences. Dozens of pastures and crop fields were destroyed. *It was the first time any farmer in the Ardennes could recall* such an occurrence in the region. The conifer cultivation was silently singled out for blame. Their dug-over soil laid bare to the elements with no plant cover besides conifers would no longer retain moisture.

Tensions were further exacerbated with a TV report which discussed the industrialisation of farming and the resultant damaging effects. Some livestock farmers were suspected of having anonymously disclosed information about the Christmas tree growers. One of the four farmers in the collective was taken to task and threatened with reprisals. They were now living alongside their neighbours under a darker cloud of trepidation. However, the farmers say they at least have some satisfaction knowing that the general public is being made aware of the views the collective has reached on such practices.

Empirical material and analytical focus

This case study examines the issue of degradation caused by Christmas tree growing on land that was formerly permanent grassland. We made use of interviews and site visits along with a group of four farmers. This method of analysis was chosen to understand a damage that is difficult to grasp within a purely legal framework.

The group of interviewees wanted to give an account of presumed harm by showing us four plots (selected by them) as evidence of steady downward decline: from permanent grassland to well established pine plantation. Observations were therefore made of four fields. Two of them had been repurposed as pine plantations a year and five years ago, respectively. Two other fields looked at are under permanent grassland, with one of them having existed under that status for 20 years. The second was returned to grassland after conifers had been grown there for several years. The aim of these field observations was to collect all descriptions from these farmers of the suspected damage.

This approach taken for this case study was to analyse measures employed as an alternative to the administrative and legal reference frameworks used to qualify presumed harm and bring it to light. Everything in italics in this text is an exact quote from the interviews with the farmers.

Analysis

In this case study, the agricultural plots become a reflection of a social and economic set-up. Although Christmas tree farms have always existed in the region, their current prevalence and farming methods have changed profoundly in recent decades. Mirroring global changes in agricultural models, modern pine plantation practices have abruptly broken with the social expectations associated with cultivation in the region (Latour, 2012). For the farmers, their ubiquity has *disfigured* the landscape. The plantations are particularly lucrative, and their owners are viewed as disconnected from the land their trees grow on. The change in land use has caused some to question how such matters are regulated, accused as it is of destroying local biodiversity. The injustice they say they feel extends right down to the handfuls of soil that surround the Christmas tree, which, once sold, so say some protagonists, renders the *earth* it grew in as *stolen*.

There is no serious intention to complain to the authorities. It is not fear of reprisals that acts as a brake on using statutory means, but rather a feeling that these tools are simply inadequate for describing and responding to the situation as observed. From the farmers' viewpoint, they have *nothing to declare*. In response to the perceived inadequacy of the legislative framework, another normative framework seems to be under construction. It is not based on law, but on a set of observations rooted in day-to-day farming practices.

According to these players, who know the rural community well, comparative observations of the different land plots have highlighted a telling scale of degradation caused by this specific change in land use. More widely, such action as is taken, based as it is on observations of a number of plots of land, aims to track the biological changes playing out in the region. It is an alternative analytical framework composed of empirical findings. It involves observing soil quality, the plants that grow there and the routes of watercourses that cross the land. Particular attention is paid to what are referred to as indicator plants, which tell the history of a land plot and the different practices that have been used on it. These elements are used as *samples*[26] to observe an environment that is undergoing huge change. In addition, identifying anomalies is a separate route for acquiring knowledge.

In this context, one process was decried again and again: homogenisation. In the landscapes under review, rectilinear rows of conifers extending as far as the eye can see supplant a diversity of grassland plants and whole cortèges of animal species, to which it was an erstwhile home. At ground level, the

[26] In the interviews conducted in French, the actors used the world 'prise' translated here by 'sample'.

soil assumes a reddish tinge and is described as being *dead* and *disturbed* in these successive strata. The colour may be due in part to weeds burned by the repeated use of plant protection products.

In its form as described, conifer cultivation seems to force a sacrifice of complexities, just as any mass production system inherently will. Varied farming systems are, on a mass scale, ceding ground to standardised output that seems to homogenise everything: the soil, the crops and wild plants, and even the way things are done.

Case study #8

INDUSTRY AND BIODIVERSITY

WHEN DAVID WAS BORN IN THE PALM OF GOLIATH

When industrial activity unwittingly attracts biodiversity

This case study started out in the 80s, when a company in the tertiary sector, close to a large body of water, began major work to expand its zoned area. In doing so, it constructed a series of excavations, which temporarily created large, raised areas of upturned soil, devoid of vegetation. It transpired that the ecological characteristics of the soil were quite attractive to a number of what are called 'pioneer species'. Contrary to what anyone may have expected, these areas quickly become a real magnet for a range of birds whose habitat had virtually disappeared from those parts for good.

Three of these species, including two with colonial habits, play a central role in this case study.[27] Within just a few years, their population on these areas of upturned soil increased from a small number of scattered pairs to several thousand specimens, a significant proportion of the populations found in Europe. These species are listed in Annex I to the European Birds Directive,[28] and therefore enjoy certain forms of statutory protection. Consequently, in order to comply with the requirements set down in the directive, those in charge of running this industrial site were required to put in place conservation measures in respect of a part of the extension area (European Parliament, 2009).

From the moment the first birds arrived, members of local and regional naturalist associations came in groups to keep an attentive eye on how they thrived. The government department that inventories protected species was also tasked with monitoring their numbers.

Over the years, the initially planned construction works were undertaken on the property, and the open spaces that were once there, were there no longer. The measures intended to offset the loss of habitat ran into delays. Tensions erupted between the company and local naturalists, who were worried at what the area in question was turning into. Numerous attempts at dialogue remained fruitless. Ecology groups and scientists who were in on events lamented the *utter lack of interest* on the part of site management in the preservation of biodiversity.

Seventeen years on, and with a long legal battle behind them, the management had no alternative but to comply with an order by the Supreme Administrative Court to engage in measures to offset the loss of habitat. The various players combined forces in designing a zone to do exactly that. The goal was to create a space dedicated solely to birdlife, with industry footing the bill. A variety of scenarios were put forward, but the final decision lay between a complete island and a peninsula with a

[27] Colonial species are those bearing the characteristic of living in colonies of individual birds.

[28] Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds. Article 4 of the directive refers to the list of species subject to conservation as set out in Annex I to the legislation.

causeway linking it to the industrial zone. Everyone gathered to lay out their arguments and negotiate a final decision. The complete island would be optimum in terms of the ecological conditions; the peninsula, for its part, posed less of a burden and offered *conditions reasonably favourable to species*.[29]

At the conclusion of works taking four years, the offset area was completed. With the entire zoned area now built up, bird populations migrated to the peninsula, which proved to be a particularly suitable accommodation for them. In 2005, subsidiary legislation was enacted to officially designate the area as a Special Protection Zone (SPZ). The order specified a required minimum surface area and a number of compulsory criteria, including accessibility to food and conservation from predators[30]. Tensions lingered concerning the zone's ownership and who should take charge of monitoring, which were two aspects that the order, though mentioning them, failed to discuss in detail.

In 2009, a predatory species that was previously unknown in the region took a fancy to paying the SPZ a visit. Attracted to the ground-level nests laid by these pioneer birds, a fox had easy access to the peninsula's bird colony via the earthen causeway. Within just a few months, the colonies of each of three bird species were ravaged. Shoots were organised with the *problem fox* in the direct line of fire. An electric fence was erected around one small part of the offset zone. It had to be of sufficient height and set deep enough into the ground to keep the predator at bay. Within the fenced-off area, populations of two of the species rose, but at a snail's pace. The remainder of the peninsula was no longer able to support them. The site's third species disappeared.

In 2019, chicks were found dead within the enclosure. A new predator had found its way to them. The fences posed no barrier to a weasel's slender anatomy. The impact was not so dramatic as when the fox paid visits, but it was a new pressure that was brought to bear and it took its toll on the pioneer birds' numbers.

Empirical material and analytical focus

This case study relies on analysis of a large number of scientific reports prepared in the course of the past 25 years. They describe how the site in question had been modified as well as changes occurring in the populations of the relevant species. The source material consists of 16 annual reports by the office in charge of monitoring the bird populations. We additionally interviewed one of the managers in charge of the zone, a member of an association for the protection of regional biodiversity and someone from the local council working to implement measures to promote cohabitation between avian species and human activity.

[29] According to the office in charge of monitoring species populations.
[30] The 2005 order was issued by the Flemish Government.

In the interviews, among other questions, all the interlocutors got asked in turn what they considered to be the main reason for the decline in the bird colonies on site. To our surprise, the common strain that emerged in their responses was not just a lack of willingness, but also a need for compromise, which was shared by them all. Specifically, the viewpoint pursued in our analysis has been to conduct an empirical study of what one of our interviewees called *the culture of compromise*[31] and how following a succession of unforeseen eventualities inherent in the natural world, compromises can pose serious challenges to many thousands of birds.

Analysis

Analysis of this case has revealed the peculiarities of an industrial concern and a certain natural environment for pioneering species co-existing on a single site. The pioneering species need the kind of freshly exposed areas of soil that, in the past, would occur by virtue of sporadic events such as the movement of the tides and flash floods in rivers, storms and landslides. These are environments that are now extremely scarce, due to management by humans and to overcrowding in certain spaces. The particular sorts of development undertaken by tertiary industries mean that, without especially intending to, they create substitute habitats suited to the needs of these endangered species. They then unwittingly find themselves conserving a part of nature's biodiversity, as in this case study, where laying the way for vulnerable species to establish themselves burdens an unsuspecting tertiary industry with the statutory task of *caring* for them (Mougenot, 2013). And this, even though their survival is ensured thanks to ephemeral facilities intended to be built. This is one of the ecological paradoxes of these cases: preserving species that are intrinsically dependent on transitory environments.

EU law, which contains some of the most restrictive of conservation provisions, sets out a clear conservation obligation for these species, regardless of how they come to be where they are. Transposed into local laws, this evolves into an obligation on a firm that impinges on the relevant habitat to seek ways of offsetting the effects of its doing so. Here, the corporation thus burdened paid slow heed to its statutory duty, with a long period of doing nothing, during which it was severely criticised by the other *interested*[32] parties (Callon, 1986). Two decades on, this posture of disinterest, which was causing serious ecological repercussions, snapped into one of abrupt attention when conservationists filed a petition to the Supreme Administrative Court. And this was because the government itself had no legal standing to take action.

However, besides expressions of mutual exasperation among the negotiators, they changed their tune into one of blame-shifting once they learned the shocking reason for the bird colonies' drastic decline:

[31] Words as used by one of the administrators involved in the offset measures, per our interview.
[32] *Interested* here harks back to one of four stages identified by Michel Callon as part of the sociology of translation, from which the network player theory is derived (Callon 1986).

compromising.[33] This realisation by the stakeholders gave them pause for introspection. For, if negotiation means that all parties give rein to their own interests, be they economic, logistical, ecological or some combination, it seemed here to have been taken to mean rejecting all and anything rightfully asserting itself as perfect. Each parameter of negotiation was deemed malleable and got nibbled at by the unspoken manipulations exerted by each of the forces that were engaged in the process. Against this backdrop, each side was left with a feeling of having attained a *win-win*[34] situation, in which arrangements were preferred that presented *reasonable risk*[35] in the face of predation in varying degrees of intensity.

The unforeseeability inherent in the *damaged*[36] ecosystem, and in its component parts, meant that the apparent stability cloaking the concerted action was, instead, racked with instability (Haraway et Garcia 2020). Contrary to predictions, the variations in these species highlight the paradoxes and fragility of the legal system governing compensatory measures. Indeed, the predominance of negotiation seems to reflect the legal vagueness concerning the applicability of this legal tool, and more generally, of nature conservation legislation.

[33] The word used by each interviewee entities when asked to characterise what caused the damage.
[34] From talking to a regional conservation association.
[35] As stated in the official report in which the offset scenario is defined.
[36] The notion is borrowed from Donna Haraway's concept of 'a damaged planet' (Haraway 2020).

Case study #9

RACOON DOG

A QUIET TROUBLEMAKER REQUIRING ERADICATION

Discreet disturbance of biodiversity

Once upon a time, a discreet animal entered the Belgian forests by crossing the borders. This immigrant is sometimes confused with the local badger or the (uncontrolled) raccoon (Wittenberg, 2005; Mulder, 2011).

The raccoon dog – *Nyctereutes procyonoides* – is an Asian canid introduced in the late 1930s to the Ukraine and the USSR for its fur (in particular, to satisfy the needs of the Soviet army). Since the end of the Second World War, it has gradually spread to Europe as an escaped or liberated species (Leger & Ruette, 2005; Mulder, 2011). Its preferred habitat is in deciduous forest, ideally with dense undergrowth and near wetlands. An opportunistic omnivore, the raccoon dog eats fruit, mushrooms, eggs, small amphibians, fish, molluscs and micromammals. The raccoon dog therefore has an impact on wildlife, particularly on breeding bird and amphibian populations (Sutor et al., 2010). It is a vector of diseases. It also competes with other carnivorous mammals – indigenous mammals – such as foxes, badgers, martens, weasels and polecats (Baltrunaite, 2010; Mulder, 2011). A risk assessment conducted in Belgium and the Netherlands concluded that the species has high potential of establishment and dispersal in those countries. According to a predictive assessment protocol – the ISEIA protocol –, the raccoon dog receives a score of 9 and falls in category B1, representing a 'moderate environmental risk'.

Nevertheless, the raccoon dog is rarely observed in Belgium (Branquart et al., 2011) – in this regard, it defies predictive models – but is well present in our German neighbours, in the Scandinavian countries and in north-eastern France (Kauhala, 2012). Indeed, since its introduction into Europe, the raccoon dog's range has continued to expand: it has colonised an area of 1,400,000 km2 in fifty years. The low observation rate in Belgium can be likely explained by a very partial settlement, but also by the animal's discretion (Léger, Ruette, 2005): adopting a nocturnal or crepuscular lifestyle, alone or in a very small group, it uses abandoned burrows (of badgers or foxes) to establish its brood and hibernate. It is also often confused with other mammals of similar shape and habits (Borkenhagen, 2001; Gärtner & Klein, 2001).

A few isolated populations have been recorded in Belgium, but the species is not considered to be established. 'This latent phase generally precedes a rapid expansion of the species, reinforced, in particular, by the entry of individuals from Germany, where the species is in strong progression', indicates an internal document. The raccoon dog could thus become significantly established on Belgian territory, which offers a suitable climate, environment and food resources.

Classified as an invasive alien species, the aim is to eradicate the raccoon dog from Belgian territory… even if the animal is naturally sympathetic – like the raccoon – because of its cute appearance.

Empirical material and analytical focus

This case analysis is mainly based on the collection of a very large amount of grey literature, including numerous Belgian and European scientific reports. Additional interviews were conducted with people in charge of the fight against invasive alien species in Belgium: four people from the regional scientific cell in charge of invasive alien species control; a mammal expert and two members of the office of the national scientific secretariat on invasive alien species. We also met with a forestry officer and a hunter who observed a raccoon dog on his hunting territory.

The main line of analysis will first concern the question of anticipating biodiversity perturbations (in this case, natural, or in any case not directly linked to human behaviour); then, it will be a question of the difficulty of assessing and, above all, restoring the ecosystem balance (in this case, through destruction) when the perturbation is described as 'cute'. The emotional register comes into tension with scientific modelling.

Scientific monitoring, resource allocation and cuteness

Without going into detail about the complexity of the protocols and the different levels of decision-making and action, let us briefly review the history and distribution of roles in the fight against invasive alien species, using the example of the raccoon dog. At the international level, a European directive defines species of concern and estimates their (potential) impact on biodiversity. This regulation is based on a principle of solidarity between States (Branquart, Prévot, Caignet, Bizoux, 2016): the idea is to prevent invasions through prevention, eradication and management measures in all Member States.

The raccoon dog was added to the list of invasive alien species in 2017, and is therefore one of the 49 animal or plant species to be destroyed. Indeed, at the national level, the regulation of non-native animal species is based on the elimination of invasive species by direct shooting or trapping for reasons of nature conservation (protection of native species) or to avoid certain nuisances. In order to prevent the raccoon dog from becoming permanently established (as is the case, for example, with the raccoon, which is now classified as an 'out-of-control' species), any hunter, forest ranger, farmer or regional official is authorised to destroy any specimen that he or she encounters.

The national scientific secretariat on invasive alien species defines the pathways of introduction and its possible limitations, as well as possible dispersal routes, based on data collected at regional level by specialised units in charge of monitoring the species. Each region then defines a management plan for each species. All the people we met stated that Belgium is far from having a structured plan for the raccoon dog, due to the very low number of observations of this animal in the country and the

limited evidence of its establishment. However, the failure to control the raccoon has left its mark: this other mammal has colonised the forest area to the detriment of the local fauna and flora and its destruction is now not an option. As far as the raccoon dog is concerned, the objective is to eradicate it 'before it is too late', *i.e.* while the species is still in the emergence phase.

Scientific modelisation and the authorities' conclusions show a real problem in the fight against certain invasive species through progressive eradication. This is the case of the raccoon or the raccoon dog: when the species is subjected to pressure (such as attempts to eradicate it by hunting or trapping), it adapts by reproducing more. Thus, an average litter of raccoon dogs established in Europe has seven to nine puppies, sometimes sixteen (Kowalczyk, 2006), far more than in its natural environment. Also, the species tends to extend its territory in Europe very widely compared to its native environment (the forests of East Asia), even multiplying its range by ten (Léger, Ruette, 2005). The fauna thus adapts to human behaviour and, without a 'real blitz in which a large number of specimens would be eradicated at once', makes any progressive destruction ineffective, or even counter-productive.

Moreover, the competent authorities are faced with a threefold problem: the animal enters the territory by natural migration (by crossing borders) and is therefore hard to control; its regulation relies mainly on hunters who carry out their activity during the day and not necessarily in the animal's living territories; and the raccoon dog is… cute. Indeed, many specialists explain the difficulty in convincing the population of the danger represented by the presence of the raccoon dog by the aesthetic aspect of the animal, a 'plush toy' for some, with less rambunctious behaviour than the no less cute raccoon, and a real mascot for some – made famous in the video game Mario. One hunter explained the protection set up on a hunting territory to protect a specimen: the hunters agree not to shoot the animal – and therefore not to respect the regulatory recommendations for destruction – and, furthermore, not to report its presence so that the authorities do not intervene.

Case study #10

MUNTJAC DEER

FROM THE PLEASURE OF HUNTERS TO THE DAMAGE OF POLYGAMY

When animal perturbation comes from humans

Once upon a time, two regional officers, one in charge of forestry management and the other a judicial police officer, were placed under criminal investigation for corruption. They were allegedly involved in the organisation of illegal hunting parties and the illegal trade in meat derived from them. Above all, the regional administration denounced them after it was discovered that they were organising a breeding of muntjac deer to be released in the forests. Following several investigations, muntjac deer were found. The animals were shot in order to preserve the forest ecosystem.

The muntjac deer, which originates from continental China and the island of Taiwan (Leasor *et al.*, 2008), is, like the raccoon dog (see case #9), an invasive alien species in our countries. It is classified as a species to be eradicated, following the recommendations of the European Union. The muntjac deer is a small deer of a size between a hare and a roe deer (Corbet & Harris 1991; Jacques, 2000; Putman 2009). In the 19th century, it was introduced into Britain as an ornamental species. But the most common contemporary introduction – and this is what interests us here – is by some hunters who want to diversify game. It thus follows in the footsteps of the fallow deer, the Corsican mouflon, the red partridge, the golden pheasant, the Hungarian deer or the Polish hare, all of which were introduced into Belgian forests for hunting purposes.

Strictly nocturnal, the muntjac deer is very difficult to control. Moreover, the animal is independent at the age of 6 months, sexually mature in the first year of its life (Fautley et al., 2012), ecologically undemanding, polygamous, with a fast gestation period (8 months) and with no real predator in Europe (except the red fox). These criteria make it an extremely prolific species in our countries (Southern 1964; Nowak & Paradiso, 1983; Chapman et al., 1994; Ward & Lees, 2011). A risk analysis carried out ten years ago already suggested that the species might become naturalized in the coming years (Baiwy, Schockert, Branquart, 2013a).

In addition to traffic accidents, which occasion substantial costs in material and human damage, estimated in the UK at 4 million euros per year (Langbein, 2011), and health consequences as it carries the bovine tuberculosis virus (Böhm *et al.*, 2007), the muntjac deer is accused of devastating deciduous undergrowth and coppice (Kirby 2001, 2005; Cooke 2005), leading to a loss of native biodiversity. This explains both the regulations surrounding invasive alien species – in this case the muntjac deer – and the activation of the criminal justice system following an internal inspection and the findings of the regional administration regarding the breeding and dispersal of muntjac deer for hunting purposes.

Empirical material and analytical focus

In addition to the large volume of grey literature and scientific reports related to the species under consideration in this case study, the analysis is based on interviews with three people in charge of the fight against invasive alien species in Belgium; one mammal expert and two members of the national scientific secretariat on invasive alien species. The issue of introducing non-native species for hunting purposes was also discussed with two hunters and three agents of the anti-poaching unit.

It is interesting to note that this case study was the one in which we had the most refusals to interview. No magistrate wanted to talk about the case and four people from the regional administration refused to be interviewed, going so far as to forbid any form of contact with their departments. The analysis certainly suffers from these refusals, but they are also a result of the research as they illustrate the sensitivity of the subject and the tensions that exist between forest management and hunting practices.

Hide those deer I don't want to see…

In total, a dozen people will sit in the dock for illegally holding muntjac deer, breeding them before releasing them, and illegally trading them. The prosecution has requested 12 months in prison and a fine of 8,000 euros for three of them. The protagonists demanded their acquittal, claiming that they were victims of the hunting industry and that the regional administration was relentless. In the end, the sentences pronounced ranged from 10 months' imprisonment to fines of up to 4,000 euros (with confiscation of higher sums of money).

The debates during the trial – to which we only had access through circumvention and indirect comments – show the issues linked to the articulation between the administration's management of exotic species and private hunting practices. Indeed, hunters are mainly the ones responsible for the control of this species, in this case through the elimination of specimens. Good practices to regulate the deer have been established, in particular by involving hunters (Casaer, Boone, Devisscher, Vercammen, Adriaens, 2015). However, the main route of muntjac deer introduction is linked to the unscrupulous practices of hunters who want to diversify their target game. Although we cannot go too far in the analysis – both for reasons of confidentiality and data bias due to the many refusals to interview – this case study allows us to address some of the issues at stake in wildlife management and hunting.

Firstly, this case illustrates the problem of regulating hunting practices (cases #14 and #15 will deal with this in detail), in places that are not very visible and difficult to control – forests – and in the face of sometimes well-organised attempts to make hunting more 'attractive'. One officer told us, for example, of his own observation of monkeys being released to make hunting parties 'more fun'. The practice of hunting is thus torn between multiple representations – noble hunting, hunting-management, recreational hunting – and extremely varied practices that sometimes seem hard to

reconcile. Above all, this case shows the tensions surrounding the sometimes difficult overlap between forest management assigned to the regional administration and the world of hunting (or, to go beyond the framework of this case, forestry and agricultural exploitations, tree nurseries, trade in local products, etc.). Taking an interest in local cases of biodiversity degradation thus leads us into a world that is too rarely studied by criminological sciences (except by emerging rural criminology; see: Donnermeyer, Scott, Barclay, 2013; Donnermeyer, DeKeseredy, 2013; Brisman, McClanahan, South, 2014; Donnermeyer, 2016, Meško, 2020), *i.e.* a communitarian world, often rural, which lived out in relatively small territorial jurisdictions, and offers an entre-soi where the representations and practices of one and the other are intertwined.

Case study #11

EUROPEAN HAMSTER

(TOO) RISKY REINTEGRATION AT HIGH EXPENSE

Monitoring the inexorable disappearance of an emblematic species

Once upon a time, there was a small tricoloured rodent, freshly released on the edge of a field to recolonise its lost living space. But it had difficulty in getting down to the task, because modifications to its environment – fertilisers and pesticides in the first place – hindered its way of life.

The *Cricetus cricetus*, or European hamster, is a critically endangered 'animal species […] of collective interest requiring strict protection' (EU, 1992). The only species of the genus cricetus and the only wild hamster, this robust-looking rodent lived in Belgium in the Pleistocene before disappearing. It reappeared around 1840 in very localised areas of the country and rapidly expanded its range by adapting easily to anthropized environments, particularly grasslands, while avoiding wet or heavily pasteurised fields (Aulagier *et al.,* 2008). In the 20th century, intensive struggle against the European hamster was organised in the name of crop protection. However, it is more the evolution of agricultural practices than this struggle that leads to its extreme rarity (Libois, Rosoux, 1982). Indeed, the decline of this rodent can be explained by the rarefaction and fragmentation of its preferred habitat due to intensification of agricultural practices and multiplication of road infrastructures (Losinger, Wencel, Migot, 2006).

The European hamster is now a protected species under the Bern Convention and is fully protected in Belgium. Several inventories have been carried out in Belgium, notably by environmental protection associations. The species is considered to have disappeared from the territory since 2019. In a neighbouring country, a release programme for European hamsters was set up to compensate for the construction of a motorway. Belgium also wanted to be involved in a transnational project to reintroduce the European hamster, but this was not financed in the end.

Empirical material and analytical focus

This case study concerns a counting campaign for the European hamster that involved two environmental associations and several dozen volunteers. Two interviews were conducted in order to understand the ins and outs of these programmes, and the plans envisaged to make the protection of the species effective on the territory. An analysis of scientific reports and the press was also conducted.

The analysis focuses on public policy choices for the conservation of native (in this case, emblematic) biodiversity, in a context of economic development that is not in itself favourable.

It is not worth the effort

The European hamster historically has been coveted for its fur, especially in Russia in the 1950s, but the main factor in the decimation of the animal is its being destroyed because of the damage it causes to crops. Before being protected, the European hamster was indeed a vermin species. Above all, it is now the emblem of a loss of biodiversity linked to intensive agriculture. Indeed, the artificialisation of the territory, increase in the size of agricultural areas (which obstruct its migration), monoculture and the disappearance of fallow land no longer offer favourable conditions for the hamster's development. In addition, corn crops provoke madness in the animals, leading to cannibalism of its own young (Tissier, 2017).

Scientific analyses identify possible solutions to avoid the definitive disappearance of the European hamster: restructuring the agricultural landscape and promoting healthier agricultural practices to allow recolonisation by the European hamster and the reconnection of its living areas. Specialists therefore conclude that 'the preservation of the species is indeed part of a more global approach to allow agriculture to guarantee the standard of living of farmers, but also to respect the environment' (Losinger, Wencel, Migot, 2006, 64, our translation).

Reintroduction programmes involving the release of hamsters into areas suitable for their survival and reproduction, as well as measures to preserve their natural habitat, are being considered. However, the then Minister of Agriculture explained that these programmes 'involve significant costs for uncertain success'. This explains why public funds will not be spent on the (potential) maintenance of this emblematic species in Belgium.

Moreover, two major obstacles do not allow for optimism regarding the conservation of the wild hamster: acceptance by humans – particularly farmers – is far from being acquired, and the trend towards intensive agriculture – which currently precludes the restoration of environments favourable to the European hamster – is significant. R. Libois and R. Rosoux, following an assessment of the situation in 1982, already concluded with the following words: 'Would so-called organic agriculture be the road to salvation for the Hamster as well' (Libois, Rosoux, 1982, 236, our translation).

Case study #12

THE ECOSYSTEM ENGINEERS

WHAT HARM?

Presentation

On a day one autumn, the carcass of a mammal was found by a walker in a particularly popular spot. The body was nailed to a raised wooden plaque by its paws. The perpetrator had stuck a message to the sign accusing the species of being behind recent catastrophes in the region. The animal was a protected species under European Union law.[37] It is classed as an ecosystem engineer[38] capable of significantly changing their environment through their actions.

The walker shared a photo on social media. The image spread like wildfire provoking indignation among Internet users. The abundance of angry reactions drew the attention of the minister responsible for the environment. They wanted to verify the facts, which, until that point, had been spread informally. To do so, the ministry contacted the local council where the occurrence took place. The stakeholders responsible for responding to the killing of a protected species sprang into action with great ceremony. The local police was contacted to visit the crime scene.[39] The department in charge drew up an official report. The anti-poaching unit was also brought in. Finally, the mammal's body was transported to a veterinary clinic so an autopsy could be performed.

For several days, it was also the lead story in local newspapers and on local TV. Articles repeated the perpetrator's words over and over, alongside the limited number of statements published by the local authority on social media. Most featured the single photo taken of the scene by the original passer-by. The uproar on social media continued to swell with each article and TV report.

Two days after the carcass was removed, several members of a local political party exploited the story by placing a placard in the same location. This placard featured a message pointing the finger of blame not at the species the perpetrator had accused from the outset but, instead, at local politicians, for their allegedly poor management of recent catastrophes.

For their part, those in charge of the department with power to act appeared on a TV news programme to give a critical analysis of the remarks associated with the offence. They highlighted the *benefits*[40] that this *ecosystem engineer* represents for the areas in question. The ministry with responsibility was given a public grilling about the measures that should be taken, with them responding directly via social media. The media storm lasted a week.

[37] Directive 92/43/EEC of the Council on the conservation of natural habitats and of wild fauna and flora

[38] A concept developed by Clive Gareth Jones, who describes the degrees of influence that species have on their environment (Jones, Lawton, et Schachak 1994).

[39] The police presence was cited in press articles, not by the police officers themselves.

[40] Remarks taken from a TV news clip.

A few days afterwards, the council took the decision of filing a police complaint, founded on the killing of a protected species. The public prosecutor's office decided to initiate a court case with the municipality as the plaintiff. It was a move urged in part by the fact that several similar events had already occurred elsewhere in Belgium.

Despite all this frenetic action, the case was abandoned the following spring. The prosecution file was *empty.*[41] It contained no evidence of the perpetrator's identity. The autopsy report even shed doubt on the cause of death. Had the perpetrator in fact staged the crime with an animal they had found that was already dead? Of the many newspapers that had reported the story, only one published a short article on discontinuance of the court case. It also included the photo of the animal nailed to the sign.

Empirical material and analytical focus

The empirical material used includes a comprehensive review of the press coverage of the story, statements on TV news programmes and a sweep of 100 reactions on social media from members of the general public, political organisations and environmental organisations.

Lastly, four interviews were conducted with all the parties enlisted in the formal response to this offence: the council member, the relevant department of the Walloon government, a working party made up of associations and someone from the court.

This case studies the reactions that followed the death of a protected species that engineers its ecosystem. It enables us to examine the link between what occurs when an offence is blown up into pageantry and the way society is moved to act as a result, including its institutions.

Analysis

Each species has an impact on its environment, however negligible that may seem. Species that are referred to as ecosystem engineers have a specific way of changing the landscape around them to a degree that is completely different from the effect that other living organisms have (Jones, Lawton, Schachak, 1994). In this case, the animal was a mammal that lives in aquatic environments and engineers both rural and urban spaces with the main aim of changing water levels.

The macabre scene in question demonstrated that the perpetrator, if no one else, had been adversely affected by the presence of the species in this region. It was a physical expression, here, in paroxysmal form, of tensions that can come into being between the human and non-human users of shared spaces. In this case study, the animal occupies two main roles related to its status as an ecosystem

[41] Remarks taken from an interview with the authorities in question.

engineer: the pest and the builder. They reflect two modes of existence established by the protagonists of the case (Latour, 2012).

The first is the role of an *ecosystem engineer* that changes its environment to the extent that it could be considered a *pest.*[42] To enact its transformations, the mammal takes what existed previously, destroys its original form, whether natural or constructed, and leaves it in a new state. This characteristic disturbs the uses of a place as well as the attachments that arise from it. In a wider sense, by changing the structure of the landscape, the animal disrupts the social boundaries we assign to livings things (Roue, *et al.*, 2016). From this point of view, the government department, which is suspected of protecting the animal, is seen as a *fundamentalist*[43] entity that always puts the environment first. The perpetrator seems to see this mammal as a *pest* possessed of transformative powers beyond the imaginable. In the eyes of the culprit, the animal thereby becomes an agent capable (Reus, 2018) of causing region-wide disaster. The culprit's note probably seeks to make more people see the animal as a *pest*.

Making a big spectacle out of what was supposed to be a killing led to virtual turmoil,[44] triggered by a photograph. This photo became a viral vehicle for indignation. Once it was shared, it created a social chain reaction in which the mode of existence – the pest's – was reversed. The image of the animal nailed to the sign seemed to provoke an emotion that upended the perpetrator's premise. In contrast to the majority who saw it as a martyr, the perpetrator, in wanting the animal to be seen as a *pest*, a *beast* and a *destroyer,*[45] was therefore painted, fantastically, as a *backstreet abortionist* capable of *cruelty.*[46]

The term *backstreet abortionist*, if extrapolated more widely, is used here to refer to the arguments concerning the awareness of the aborted individuals. This analogy is also clearly illustrated by many of the reactions to the event: *A pest … that destroys the innocent [mammal].*[47] Faced with the image of the animal impaled on its sign, many of the comments cited its innocence as a being whose awareness is unfathomable but whose vulnerability seems certain. More widely, the events were described on several occasions as being an expression of the *degeneration* of the human species. This encapsulated the role of *destroyer* in this theatrical action.

However, it would seem that this chain reaction kick-started procedures at the town hall and in the courtroom, which had been difficult to initiate in other cases in which animals of other species were killed.[48] The way this case was made public, and the massive amount of attention it garnered, seem

[42] Taken from the placard displayed next to the carcass by the perpetrator.
[43] Idem.
[44] Here, the word *virtual* highlights the fact that the main medium through which this emotion was expressed was that of social media.
[45] Taken from comments about the case on Facebook.
[46] Idem.
[47] Idem.
[48] Reflections that resulted from the exploratory phase and the interviews relative to this case study.

to have impelled each of the stakeholders to take action in succession. It therefore became a work priority in the space of just a few days. It is interesting to note that it was the ministry that, being acutely aware of the public mood, initiated this process by drawing the council members' attention to the *scale of the phenomenon on social media.*[49]

The gravity of the incident, *not for the species but (...)* for *the way it came to be staged*, also *dictated a need*[50] the authorities responsible for an official response to the infringement as charged[51] to take a public stance on a television news programme. Government and the council responded by describing the second mode of existence embodied by the animal: a species that *builds its environment*. The body that was nailed to the sign is therefore representative of a species that builds more than it destroys. Amongst the entropy produced by the animal, this response highlights the arrival of a raft of new species and the buffer role that modified spaces can play when catastrophe strikes in the environment.

[49] Remarks taken from an interview with council members.
[50] Idem.
[51] I.e. the unlawful killing of a creature of a species that is fully protected.

Case study #13

WHAT IS THE VALUE OF NATURE?

DIFFICULTY IN ASSESSING THE QUANTUM OF ECOLOGICAL HARM

Presentation

'Trap-setting' (or bird trapping – in French *tenderie*) refers to the practice of catching live wild birds *using any one of a range of fixed or mobile traps*[52]. Although officially banned in 1993[53], it is still practised illegally in some parts of Wallonia. The captured birds are ringed using fake but official-looking tags, thus creating an impression that they are 'purportedly kept according to law'.

Some regard it *as an ancestral practice rooted in Wallonia's hunting heritage*[54], maintained only by songbird enthusiasts, one, it is said, that ultimately is of little impact. But the perpetrators of such illegal acts range from those spurred by *great personal enthusiasm*, who *capture maybe a dozen birds over their lifetime, observe them and provide them with care and attention*, to large-scale trafficking rings using networks of linked parties, from hunter to buyer, via multiple intermediaries.

A number of sizeable trafficking operations have already come to light in Wallonia, with ensuing prosecutions as a result. One case in particular caused quite a stir and was given prominence owing to its importance as a judicial precedent.

The government ordered a dossier on the matter and, after several years, a regional administration and two non-profits in the field then raised civil actions under the aegis of criminal prosecutions against a number of hunters operating at the core of a far-reaching trafficking operation in wild birds. The defendants were charged with capturing wild specimens in large numbers over a period of ten or more years. In an official search of their premises, more than 1000 birds were seized, including some on the endangered list. It was the largest haul ever in Wallonia.

The public authority sued each of the defendants jointly and severally for environmental harm, quantified *ad interim* at approximately 200,000 euro. The figure wasn't plucked out of the air. It was a measure of *how difficult it can be to assess the costs of countervailing measures*. This cost estimate was intended to cover a battery of initiatives in the field intended to foster the restoration and recovery of species populations in the habitats where trafficking has impinged on them.

The net effect of the judgment at first instance was that the traps were seized, with each defendant paying a notional fine, from a few to a few thousand euros. But the court rejected a money claim

[52] (Larousse Editions s. d.)
[53] (Moniteur belge 1994)
[54] Comments from a motion for a resolution by the political party, Mouvement Réformateur, on 8 February 2017. The resolution was officially withdrawn following the controversy it generated. Traces of the text can be found in the press articles which contain extracts from the document.

based on the quantum of damage occasioned to the natural environment. The prosecution, believing justice had not been served, decided to appeal.

The Court of Appeal affirmed the lower court's judgment and increased the fines. It went on to enounce two crucial *dicta*: acknowledgement that falsifying the birds' rings constitutes forgery and uttering and, more importantly, that it is a milestone decision in setting a definition for 'ecological harm.'

The concept of ecological harm was reaffirmed by the Court of Cassation, a first.

Nonetheless, some observers hold the view that the case turned out *disappointing,* for want of a sum specified that properly aligns with the true harm inflicted. The concerned administration was destined to fail on this particular charge, owing to the excessive difficulty in determining quantum; instead, notional fines were preferred.

Empirical material and analytical focus

This analysis addresses the issue of whether ecological damage should be recognised as actionable, and the complex process of quantifying it such that the harm done is actually put right.

It relies on documents contained in the prosecution file, and on two interviews conducted with experts whose services were engaged by the regional administration to develop a methodology for assessing damage claims in respect of such harm. Press articles were used to trace the various stages that led from investigation to trial. Italicised words and phrases are cited directly from the interviews.

Analysis

First and foremost, the Court of Appeal judgment was a landmark with its definition of ecological harm: 'Ecological harm is generally defined as harm caused directly to the environment as such, regardless of its impact on persons and property.' This was the first time a court in Belgium had defined what is meant by 'ecological harm', more than 20 years after France did the same.

Belgium hitherto had no precise legal definition of the term. The concept of harm appears to come up for consideration only if it relates directly to human interests. It is limited within the ambit of section 1382 of the Civil Code, by which harm (or loss) is circumscribed in the following terms: any circumstances procured by man and by which loss is occasioned to others imposes on him by dint of whose fault it came about an obligation to compensate it (Goldstein, 2017). Although the definition is broad and of obvious application where harm is occasioned to a person, or even to persons sharing an interest (such as a fishing club), it has hitherto been deemed not to extend to compensation for ecological harm that, as such, has no implications for human activity.

However, even though ecological harm is recognised as actionable, no figure has emerged that can be given for the quantum of loss it causes. The prime difficulty is to determine what money equivalent

equates to what environmental harm. The Court of Appeal ruled that, as a rule, it is hard to quantify with mathematical precision harm occasioned to elements in the environment that cannot be ascribed to any proprietor owing to the absence of any economic loss that would serve as the key to expressing it.

In the more common case of assessing personal injuries, ready reckoner rates are available; they which are not official but based on a broad consensus of awards that are made in court practice. Environmental harm, which very seldom reaches the courts, is a matter that each prosecutor and judge assesses individually by their own wits, given there exists no practice guidance on the issue. Where the offence is the illegal capture of wild birds, the market price is taken as a basis, multiplied by the number of specimens found to have been captured. Indirectly, therefore, it is the offenders themselves who set the compensation figure. No doctrine has been developed based on the intrinsic value of a species within its habitat. There being no statutory framework for this kind of case, the answer the law gives will vary greatly.

In the case referred to, considerable work was nevertheless done to refine specific terminology by which loss or harm could be given objective expression. It is based on four criteria, such as the rarity and status of the impacted species. These calculations show that someone capturing birds, at intervals spread over a ten year period, will cause palpable harm to the populations of a species within the region. The public authority has, ad interim and pending additional input from an expert, claimed the figure it has arrived at on the basis of a raft of countryside-management measures (like hedges and leaving cereal crops standing in winter) so that populations of affected species have a chance to recover.

The fact is, realising they find themselves in unfamiliar territory when the case before them involves this kind of environmental damage, prosecutors and judges remain sceptical about the method. It was regarded as too subjective considering that it targets biodiversity in general and not only the protection of birds which is specific to this issue, illustrating the difficulty in defining the extent of the damage and its fair compensation.

One interviewee said: [t]he judge takes the view that putting a value on restoration of the status quo is overly complex, and that he has at his disposal no objective criteria by which to settle cases. Therefore, he ruled on the equitable principle known as ‘ex aequo et bono’: that which is fair and good. It’s a principle that judges resort to when they conclude that there is insufficient objective evidence in a case, and they must rely on their own ability to reach a settlement.

In the end in this case, the public authority was awarded an ‘all-in’ sum of damages, which the Court of Cassation affirmed based on a ‘loss on investment’ reasoning. However, it goes no way towards making good the loss caused to the birds as a species.

One further landmark point comes out of the case: the fact of ascribing the status of ‘legal person’ to a public authority, which is new. The court recognises ecological harm as a matter of personal injury occasioned to the administration personally, as an upholder of conservation on behalf of the species

in question. But what would happen in cases where the public authority is the one at fault? How legitimately could groups sue the administration under that heading?

Finally, there is the matter of Court of Appeal's holding that the abuse of bird-breeders' rings constituted forgery and uttering. The court was of the view that using the fake rings as a means to purport a wild bird's legality constituted uttering as defined by section 197 of the Criminal Code. The judgment is a true landmark, if only for this one finding in law: a criminal act of medium severity shifts to being one of grave severity, giving a lead that will allow Justice to demonstrate its intransigence in future cases with similar facts.

It was also the first time that the administration had sought compensation for pure ecological harm, in the sense that it was the species, and even individual specimens of that species, that were affected, and not an environment. These species had no intrinsic value as such, other than that bestowed by the criminals who capture them. The same goes for non-profits, which generally sue for non-material damages.

Case study #14

GREAT HUNTERS, POWER AND ADMINISTRATION

FROM THE BRACELET TO THE MUZZLE

When the tree hides the forest, and the wolf still runs...

Once upon a time, a wealthy and influential big hunt organiser was on the radar of an investigation unit specialising in hunting offences. One winter day, the Regional Anti-Poaching Unit received a call from a forestry officer. Several reports had been drawn up against Mister X, a large landowner and well-known hunting organiser, mentioning irregular practices aimed at distorting hunting quotas. According to several sources, large numbers of animals killed were regularly transported to the hunting territory without a traceability bracelet, something required by law.

Several clues, which we will not go into here so as not to divulge the investigation techniques, corroborate the suspicions. It seems that animals killed during hunts are reported several times, in different places. Hunters are subject to 'shooting quotas' that set the number of animals to be killed – a minimum and maximum number of wild boar, or antlered and non-antlered deer – in order to maintain an agro-sylvo-cynegetic balance, reduce the risk of crop damage, limit the overpopulation of certain species, minimise the impact on biodiversity, and contain health risks and the risk of road accidents. These hunting plans are based on 'hunting tables' that count the number of animals killed (Licoppe, Malengreaux, Duran, Bertouille, 2018). Some hunting organisers are critical of these shooting plans: they constitute a constraint and may decrease the attractiveness of a hunting area by reducing the game available.

The owner of the hunting territory in question is suspected of inflating his quotas in order to keep as many animals as possible on his site and to be able to boast of lush hunts. An operation is set up: after a hunt, a vehicle transporting game to the hunting lodge is intercepted by a team from the regional unit. During the inspection, a doe without a tracking bracelet was found. The means of transport and the animal were confiscated. During the investigation, a forest ranger testified that he had been there and had authorised the transport of the doe without a bracelet. During the investigation, the specialised judicial police officers realised that 'at least' one forest ranger was covering up the landowner's regular offences. 'We were never able to prove it… well, yes, we could prove it… but… it was tricky', recalls one officer. Other offences were observed, notably in the declarations relating to the game killed: fawns hunted were in fact fallow deer fawns; hind corpses – discreetly marked by the investigators – were declared on several occasions (on different dates or in different places). 'It's not the first time they've played with all this, but each time the case doesn't get very far because the lawyers put pressure or because they always find a procedural mistake or something else', laments another officer. The officer in charge of drafting the report on this control decides to hand-deliver the report to the prosecutor. The prosecutor also received the forester who claimed to have been present during the controlled hunt. 'The forester's testimony was not impartial. We felt that a grain of salt had crept into his report, which was probably not written by him', recalls a person close to the case. For

lack of evidence, the prosecutor decided to refer the case to the administrative sanctioning official. 'And then it was immediately classified without any further action, just by seeing the name of the hunter in question', explains an investigator. In reality, the administrative sanctioning official did examine the case and imposed an administrative fine of 400 euros. This amount is a trifle compared to the fortune of the hunter-owner. Nevertheless, 'the repressive objective had been achieved', according to the administrative sanctioning official, which is not to be seen in the amount of the fine.

Empirical material and analytical focus

This analysis focuses on a short but extremely revealing moment. Indeed, the 'small' investigation concerning a traceability bracelet missing on a single cervid killed during hunting allows us to raise the very worrisome issue of non-respect of shooting plans. For this case study, the following people were interviewed: two hunters and a representative of a well-known hunting society, four officers from the anti-poaching unit at the time of the incident, an officer from the regional nature and forestry department, a magistrate, a sanctioning official and a source who wished to remain anonymous because of the sensitive issues that still exist today between major hunters and regional administration officials. It is important to note that neither the accused, nor the owner of the land, nor the private gamekeeper wished to respond to our request for an interview or they remained silent.

Lobbying lords and public authorities, a history of control and influence

By the middle of the 19th century, deer had almost disappeared from Belgian forests, due to unregulated hunting practices (Delvaux, 2015). The emergence of hunting management made it possible to re-establish the sylvo-cynegetic balance, first to save the deer from a programmed disappearance, then to regulate its overdensity.

The deer is the only animal subject to a shooting plan in Belgium: each hunter, or each hunting council, asks the regional department of nature and forests to specify the number of specimens to be shot during a hunting season. The shooting plan is then approved, refused or modified. While the aim of the shooting plans, when they were introduced in 1989, was to preserve the species – the shooting plan set a maximum number of deer to be shot – since 2000 the aim has been to control an expanding species (with minimum quotas of animals to be killed). The aim is to control deer populations in order to avoid ecological (low forestry regeneration, destruction of young plants and small mammals, etc.) and socio-economic (destruction of crops, road accidents, etc.) impacts (McShea, Underwood, Rappole, 1997; Augustine, DeCalesta, 2003; Fuller, Gill, 2001; Côté, Rooney, Tremblay, Dussault, Waller, 2004; Mark, 2012). The shooting plan, the cornerstone of deer hunting management, is based on two pillars: estimation of population densities (through studies, night counts and analysis of the previous year's hunting tables), and traceability of each specimen shot or found dead.

This case study deals specifically with an offence involving the fictitious declaration of hunting tables, and thus the failure to observe the shooting plan. The motivation for such an offence lies in the desire

to have a very attractive and abundant game hunt; in other words, to maintain the over-density of game to the detriment of sylvo-agro-cynegetic balance, forest ecosystem regeneration and biodiversity protection.

According to a Listen survey (2019), 74% of the Belgian population is against hunting. Hunting is criticised based on three main points: hunting practices cause animal suffering; hunters self-appoint themselves as wildlife managers and restrict access to the forest for other users (naturalists, farmers, hikers, etc.); and hunting, far from fulfilling its regulatory role, further disturbs biodiversity. It is the practices of releasing farmed animals and artificial feeding – practices governed by legislation – that crystallise the complaints of environmental protection associations (Natagora, 2014; LRBPO, 2016; Aves, 2018). Finally, hunters and owners of hunting land are blamed for organising the over-density of game. While there are natural causes for over-density of deer and wild boar – in particular, warmer winters that allow even the weakest animals to survive, facilitate access to numerous food resources and favour reproduction – inadequate silvicultural management and the lack of regulation by hunters remain the primary factors in the overabundance of big game.

Representatives of the hunting community do not deny the over-density of deer and wild boar, or even the disastrous consequences of this. Some even refer to large game as a 'nuisance for humans' (Barraquand, 2016) which, in addition to environmental impacts, entails the risk of road accidents or damage to public facilities and private gardens. Sometimes, they minimise their share of responsibility, blaming the causes of the overabundance of game on climate change or the lack of forestry management by the regional administration.

As a result, hunting is often portrayed as a dominant lobby of people who are very influential along with a few policy makers. The aim here is not to reinforce or deconstruct this representation, but to outline its contours, particularly with regard to the interviews we conducted.

Even if the hunting hobby has become more democratic (Traïni, 2004) (approximately 0.2% of the Belgian population goes hunting, *i.e.* 1 in 452 inhabitants), its practice, through the prestige associated with it and the network of social contacts that it maintains or through hunting's annual financial costs, attracts certain socio-economic profiles. Although the socio-demographic profiles of hunters are in fact quite varied, the issue of hunting regularly brings to mind the confrontation between public and private interests. Hunting is often depicted as a dominant lobby exercised by people who are very influential with a few political decision-makers.

Hunting rights holders – *i.e*. landowners – have to pay for the damage inflicted by game (in over-density) on fields and crops. However, several people we met mentioned the relationship of dependence that exists between these hunting owners and neighbouring farmers. Indeed, many owners of hunting grounds, sometimes from large fortunes, also own the neighbouring agricultural land and rent it to farmers. This makes it hard for aggrieved farmers to claim redress or compensation from the owner of the land they rent. Some forestry officers say that this relationship of dependence

– or even subordination – also explains the low level of denunciation of 'game crops': these enclosures of maize that serve as a feeding ground and attraction. In fact, to get around the prohibition on feeding, hunting owners make cornfields available on the outskirts of forest areas; these enclosures are opened according to the needs of the game, which remain fixed in one area. An officer from the anti-poaching unit also explains how some large landowners ensure that they have no competition. He mentions a major economic actor in Belgium who, in order to attract hunters to his land rather than to his neighbours', hires 'mercenaries' to kill game from small neighbouring hunts. This would also make it possible to devalue the land emptied of game and buy it back at an attractive price.

The aim here is not to deal with the influence – real or imagined – of the stakeholders in the hunting world, but to identify the representations of the various actors. Nevertheless, without even mentioning the economic or political weight of certain 'great hunters', we can note the factual weight of hunting in the management of large game. As it stands, only the shooting plans, which are ultimately determined by the lead that comes out of each shotgun, make it possible to regulate the state of cervids (and ungulates) in Belgian forests.

In the end, while modest hunters see shooting plans as a form of pressure (Hubert, 2019), violations of the shooting plans committed by the most influential hunters seem to be rarely if never prosecuted and directly call into question the relevance of the categories of offences sanctioned.

Case study #15

STORIES OF POACHERS

'PETTY' CRIME AND HEAVY SENTENCES

A story of rural boasting

Once upon a time, there was a woodsman who, in order to make a little money as he spent his free time, enjoyed the resources that the forest offered him. From time to time, he went out at night armed with his rifle. Often he came back empty-handed. Sometimes he would shoot a wild boar and share it with his friends and family or occasionally sell it at the local butcher shop.

For several years now, poaching of large game has not been a problem, either in terms of the legal system, as the last cases of industrial poaching date back some thirty years – or in terms of money, as hunters are no longer afraid to steal meat because of the derisory prices of venison. Neither has it been a problem in terms of the environment for, apart from *tenderie* (see case #13), the damage to biodiversity is nil – nor in terms of animal welfare, for unlike frog or bird poaching, big game poaching requires discreet and rather respectful approaches, even if it is illegal. Nevertheless, a few cases of animals being shot alerted the regional authorities in the early 2010s. Searches were carried out at the homes of a few unscrupulous hunters, but nothing was found. The magistrate in charge of the investigation organised a meeting with the region's hunters. 'We look like idiots. We had to go to all the hunters… and they are the ones who are ultimately harmed… to ask them if they have anything, because we had nothing. Even after several years, we have nothing', explains an investigator. A few weeks later, a hunter – a policeman by profession – called the anti-poaching unit because a wild boar had been poached on his hunt. The animal had been shot in exactly the same place as a deer that had been illegally shot two years earlier. On the spot, the investigators made a record of the tyre prints, fur and blood. Four days later, the policeman-hunter called the investigator back: 'I think I know who it is', and described a conversation in a village pub where a man boasted of having killed a boar. He adds he passed by this person's his home and noticed that his vehicle was marked with grass and mud. The search was authorised and poaching equipment was immediately found: undeclared weapons, illegal equipment, a headlight…

In the end, the poacher was prosecuted for killing two wild boars at night and being on the lookout: no environmental damage in a situation of boar overdensity, and it could even be seen as an ecological gesture. The individual was nevertheless called before the courts to explain the facts. He received a suspended prison sentence.

Empirical material and analytical focus

The analysis of this case study provides a complementary perspective to the previous case. It will be a question of a hunting offence, seen here as an entirely illegal practice: poaching, although there is no criminal qualification for this term. In fact, in contrast to violations of hunting regulations, seen as

more or less legitimate deviations from the rule within the framework of a regulated practice, poaching is perceived as a 'totally' illegal practice. It is a question of representations that influence, at least partially, the treatment given to the offence.

This case study is based on an analysis of six poaching cases (although only one is included here) and on interviews with three officers of the anti-poaching unit, a gamekeeper, a magistrate, the administrative sanctioning officer, representatives of a hunting society and two poachers (one of whom is the defendant).

Through a comparative analysis, this case of 'petty' poaching highlights a form of differentiated regulation, not according to the ecological damage, but according to the profile of the person charged or the ease with which the case is handled.

Between rural management of unlawful acts and differential regulation of illegalisms

Although poaching of big game has been on the decline for several years – to the point of no longer being a priority, or even a main focus, for the anti-poaching unit – the latest poaching cases reveal something about the regulation of hunting offences. Indeed, poaching is not a category of criminal offence. Poaching practices are therefore sanctioned under the label of 'hunting offences' (like other offences, such as the one studied in the previous case study). Nevertheless, we observed a clear difference in the way all the actors represented offences committed in the context of hunting (feeding, fencing, illegal shooting, alteration of hunting lists, disputes between neighbouring hunters, etc.) and those considered to be 'totally' illegal hunting (outside authorised hunting periods, particularly at night or out of season, with unregistered weapons, without any declaration of the animals killed, etc.). Under one and the same penal qualification, a diversity of illegal practices can be found, which the actors – hunters, regional and judicial authorities, citizens – divide into two categories: arrangements with the rules and illegal practice (as poaching). All the hunters we met went so far as to convey the idea that 'all hunters must know how to play by the rules' in order to be able to hunt in peace of mind.

This idea that there are circumstantial offenders and 'real' offenders involved in big game shooting resonates with another, fairly unanimous, representation: poaching is 'clean hunting'. If we disregard the opinion of aggrieved landowners and the (slight) financial losses that poaching entails, all the stakeholders we met believe that the practice of big game poaching – as long as it does not exceed certain limits – has almost no impact on the environment and the state of biodiversity. The number of animals killed is insignificant. Moreover, poaching is a braver practice as it involves walking alone or in very small groups through the forests, generally at night. It is also seen as more respectful, for the fauna and flora are only slightly stressed and disturbed; and it involves less suffering for the hunted animal as the shots are generally clean and are done from a lookout. This representation breaks with the vision of hunting that is mostly practised in Belgium: the hunt with horns and shouts.

Poaching, even more than hunting, also refers to a practice and a form of rural crime, with its own codes, the fascination it arouses, and its own methods of regulation. Judicial police officers in charge of poaching cases regularly mention the affinities they may have with 'small-scale local poachers', while making sure they keep the necessary distance in order to enforce a certain order in the forest. Here, it is less the ecological damage that motivates the investigation and repression work than the 'good rural order'. Under the adage 'who steals an egg, steals an ox', the idea is to avoid the risks of accidents or exaggeration: to avoid shooting near houses by showing that the land is watched, to limit the extent and frequency of poachers' night-time outings by speeding up investigations in case of suspicions, etc.

The most difficult task is usually identifying the poacher(s) when animals are found shot or shots are heard at night. Nevertheless, when this identification is made, poaching cases are relatively simple to process and involve little administrative effort. This partly explains why the public prosecutor's office generally handles these cases, which are processed quickly and efficiently. Although, in reality, many cases of 'petty' poaching result in relatively light sentences (suspended sentence, light fines, etc.), an idea persists, both in the minds of the accused and in those of the judicial officers: the sentences pronounced are inversely proportional to the level of the offence, or to the reputation of the offender.

Thus, many describe a differential treatment of illegalisms. 'Petty' (or 'smalltime') poachers are said to be punished more than 'bigtime' hunters who break the law. Even if the conditions of representation: access to one or more specialised lawyers, a network of acquaintances, a capacity for economic, social or political pressure, etc., seem to influence the way offences (and above all of the offenders) are treated, differential treatment seems to lie elsewhere. Instead, it is actually possible to observe a judicial and legal under-processing of certain cases because of the purely environmental nature of the offence. Ecological damage alone is not enough for a severe sentence. Thus, poachers who combine other offences (illegal carrying of a firearm, rebellion or violence, participation in the illegal meat trade, etc.) are punished more severely than environmental offences alone.

The comparative analysis of the treatment of two hunting offences (case study #14 and this one) perfectly illustrates the differential treatment of illegal activities. Indeed, a 'small' poaching offence (the illegal shooting of a few wild boars, *i.e*. no environmental damage, or even an ecological gesture in a situation of overcrowding of boars in the forest) receives a relatively heavy judicial treatment (the poacher will be sentenced to a suspended prison term); whereas a 'major' hunting offence (fraud in the hunting quota, *i.e.* the organisation of an overcrowding of game with serious ecological consequences) receives a lighter administrative treatment (the multimillionaire landowner who organises large hunts will be fined 400 euros). The cross-analysis of these two cases (through documents and interviews) shows the persistence of the Foucauldian analysis in the study of the treatment of illegalities of law and of goods in hunting matters (following the example, for example, of the differentiated treatment of 'small' and 'large' tax fraud).

4.2. Transversal analysis

This transversal analysis proposes four axes – themselves broken down into four sub-points – seen as paths of reflection – for new interdisciplinary research? – and not as a stabilised study of the representations of biodiversity, its damage or the levers of action that allow its protection. The aim here is to develop points of attention or scientific interpretations that emerge from an analytical cross-section of all the case studies.

4.2.1. SOCIAL REPRESENTATIONS: a research object to decipher and a scientific method issue to question

The first transversal axis of analysis, which follows directly from the synthetic presentations of the fifteen case studies, concerns a central element of the research: the representations conveyed by the many stakeholders we met. This axis directly echoes the state of the art, by placing the plural visions of damage to biodiversity in a context of action and reaction to precisely identified damage.

Ordinary biodiversity as an object that reveals

The logical starting point of the analysis is the question of how biodiversity is represented. Although all the cases showed a variety of words and images of biodiversity, this multiplicity allows us to understand the equivocality of a central notion in environmental protection. What does biodiversity mean for the people we met? It is all a question of the 'values' of biodiversity. Sometimes a single rare or emblematic specimen allows the term to be mobilised (as in the case of the beaver or the great hamster); sometimes it is the quantification that makes it biodiversity, or the indigenous or exotic nature of the species that make it up [see cases n°9, 10, 11, 12]. It may be the nature of the biodiversity sites (cities [case n°1, n°2], countryside [case n°3, 5, 7, 11, 13], beaches [case n°8], forests [case n°4, 6, 9, 10, 14, 15]), or the vision of nature as idealised [case n°4, 11, 15] or deregulated [case n°14, 10, 11]; or simply what makes biodiversity. In this respect, the tension between rare and common species seems to be relatively transversal [cases 2, 3, 4, 8, 11, 12, 13] (in any case, more so than the very question of what is or is not part of biodiversity, as can be seen in case 5: is a natural resource a component of biodiversity?). It should be noted that the representations of biodiversity, which we necessarily deal with in a partial manner in these lines, see their direct continuity in the first sub-point of the following axis (what vision of biodiversity is defended?).

Among non-environmentalists, and sometimes among experts as well, there is a natural inclination for the extraordinary, for what is emblematic (the great hamster) or, more subjectively, for what arouses our immediate sympathy (the raccoon dog). This human penchant for remarkable nature – which certainly also influenced the selection of case studies – to some degree obscures ordinary nature: that which humans encounter on a daily basis, and which is often forgotten in environmental

protection policies (Devictor, 2007). This is the non-threatened and non-protected nature (Couvet and Vandevelde, 2014), the most frequent, most visible, most common, closest (Mougenot, 2003), least specialised (Godet, 2010; Rabinowitz, 1981) and most dominant (Burel *et al.*, 1998; Clergeau, Désiré, 1999) fauna and flora. Ordinary nature is often a good indicator of the state of biodiversity because focusing on a few easily identifiable common bird species and on a relatively large scale makes it possible to estimate the (loss of) biodiversity (Eglington *et al.,* 2012).

Biodiversity harm: a public problem and a methodological issue

Even if we have studied cases of damage and destruction of emblematic species [case 12, to mention only one], or on the contrary of efforts to save them [case 11], the cases studied generally show to what extent ordinary nature is being forgotten. Thus, the revaluation of weeds in the city, awareness-raising about the usual pollution of an ordinary area of water, information about invasive exotic species, control of game density in forests, or citizen actions to prevent the disappearance of green spaces with no ecological particularities, all show the desire of people who take the initiative and react to threats to biodiversity in order to protect a nature that is linked to humans. These actions also illustrate the desire of some environment defenders (from concerned citizens to specialised police officers, via environmental protection associations and other local naturalists) to 'make remarkable' the ordinary nature that usually goes unnoticed. Indeed, the least visible biodiversity is regularly the one most exposed to the effects of industrialisation [case n°4, 8], pollution [case n°1], artificialisation of the territory [case n°3], unreasonable management [case n°6], mercantilism [case n°5, 7], negligence [case n°2, 9], ecophagous cultural practices [case n°13] or the desire to enjoy nature at its expense [case n°10, 12, 14].

This leads us to question the second part of CRIMBIODIV's central expression, the multifaceted notion of 'harm'. We have just cited the types of biodiversity damage we encountered, but without making a typology, as the exercise would be endless. However, if these cases have been identified as such, it is because an individual or a group of individuals, at a given moment and time, decided to designate this change in state or this behaviour as a (potential) harm. Many violations remain invisible because they are not identified as such, or they are underestimated or masked. The aim is therefore to shed light on the perceptions of the stakeholders we met regarding the (supposed or actual; past, present or future) biodiversity loss they are facing: how is the damage identified and what defines its contours? Finally, how does an ecological threat become a public problem (this question will be addressed in the next section)? First of all, it should be noted that the conditions under which a particular infringement comes to light are very varied: following an observation [case n°2, 3, 4, 7, 9], an expertise [case n°1, 6, 9], a suspicion, a denunciation [case n°10, 14, 15], a conflict [case n°5, 12], by chance [case n°15]. Above all, it seems important to recall the importance of the context – temporal, territorial, local – of each of the cases (and therefore the interest of a methodological approach based on case studies *in situ*).

Indeed, there is no such thing as an outright attack on biodiversity, or even an outright reaction(s) to it. Each type of harm studied in the framework of this project required going to the field, delving into its documentary meanderings and meeting the actors involved. This case study approach makes it possible to reconcile two ways of thinking about how the environmental issue is problematised in the social sciences, namely as a conception based on the dynamic processes of linking humans and nature and a conception of the environment as an object of specialised state intervention (Kalaora, Vlassopoulos, 2013). It therefore makes it possible to move away from the technocratic grip that characterises environmental studies in the Francophone field. Let us note here the importance of the interdisciplinary viewpoint which, without vowing an epistemological union, makes it possible to engage in a reflexive dialogue 'in a perspective of understanding concrete situations and operationality' (Granjou, 2014). Above all, the case studies make it possible to combine the twofold positioning, scientific and praxeological (or even political), in an approach that aims to understand the action being taken. This constructivist approach (Lemieux, 2012) makes it possible to overcome the implicit assumptions that regularly run through studies on and/or for the environment; implicit assumptions summarised here by Th. Debril, P.-M. Aubert and A. Dore: *'In environmental matters, the order addressed to sociology […] is frequently posed in terms of social representations. […] This type of order carries with it three types of implicits […]. Firstly, a theoretical implicit that makes individual and collective representations the mainspring of the explanation of social phenomena and, at the same time, the variable on which to act in order to change behaviour. Secondly, an ontological implicit that situates the environment outside the social and contributes to ratifying the division between nature and culture as well as between biotechnical sciences and social sciences. Finally, a political implicit that often turns the researcher into an operator at the service of the client who must contribute to the assessment, or better still, help improve the social acceptability of the solutions proposed therein'* (Debril, Aubert, Dore, 2015, *our translation*). The fact of being interested in cases of biodiversity harm (all the more so since they are anonymised) makes it possible to approach the mutual transformations of the environment and humans, in a dynamic and comprehensive vision, as close as possible to the field, the actors and the action (completed or in progress).

Prejudice: issues of assessment and emergence

There is said to be harm to diversity when a 'crisis' or a 'problem situation' is identified by stakeholders who decide to react to what they observe. A violation is therefore above all the product of human mobilisation (Lascoumes, 2018). In this process, there is a twofold issue of defining the damage (here, to biodiversity) and measuring the damage or harm it causes. Let us first look at the second issue.

The question of assessing the damage follows logically from the identification of the harm to biodiversity. Who and how is the degradation assessed? This involves questioning the expertise, 'quantification' of the damage (the case of Tenderie [case n°13] is the most blatant example, but the question crosses other cases [case n°1 or 4, for example]), or transfer of the evaluation from the administration to environmental associations (or even citizens) [case n°4, where the evaluation is carried out by citizens' counts and by a specifically constituted environmental collective, for example],

or privileged partners [case n°14, where associations representing hunters are involved in the verification and elaboration of shooting plans, for example]. This point raises questions about the description of nature through inventories (which species are inventoried, and by whom?). There is a large literature on the diagnosis of environmental damage (see, for example, Bas *et al*., 2013; Delache, 2002; Born, Dupont, Poncelet; 2012; Devictor, 2018), which is regularly coupled with the development of the legal concept of ecological prejudice (and its compensation) (which we do not return to here; see in particular: Bocken, 2008; Steinmetz, 2008; Thunis, 2012; Gueye, 2016; Malet-Vigneaux, 2016; Borderon-Carrez, 2018; Rombauts-Chabrol, 2022).

However, the first issue we mentioned seems fundamental (and is often little mentioned): it is a matter of deciphering the definition and rationales at work in the emergence of a biodiversity loss. Although the redefining of an observation into a case of harm to biodiversity varies greatly depending on the specific context, we can distinguish several ways that a problem situation can be characterised into a public problem of environmental harm. Sometimes, it is a question of a disinterested defence of nature. In this case, the ecological damage is informed by regular monitoring performed by scientific bodies within the public administration [cases 1, 6, 9, 10, 11], or sometimes by the vigilance of environmental protection associations or attentive citizens [cases 3, 4]. In other cases, the classification as an infringement is the direct result of the shock of an observation [case n°7, 12] or follows an investigation aimed at bringing harmful behaviour to light [case n°13, 14, 15]. In some cases, use of the qualification makes it possible to give importance or legitimacy to a conflict or a cause (by 'greening' an issue or a proposed solution) [case n°8], or even may be the pretext for it [case n°5]. In this non-exhaustive typology, we often observe that nature is protected for what it offers to humans [case n°2, with the promotion of ecological corridors, is a strong example, but this tension runs through many cases].

It is a promotion of biodiversity – or even more broadly of nature – and therefore a reaction to its harm, whose motivations are based on the ecosystem services it provides (bees provide honey; trees prevent soil erosion, etc.). The social or economic value, the human added value, exceeds the value of biodiversity 'in itself'. This observation is interesting because studies (e.g. Gaston and Fuller, 2008) show that ordinary nature (cf. *supra*) produces more services for humans than remarkable fauna and flora and acts as a support for ecological functions (Mougenot, Melin, 2000). Reactions to attacks on this biodiversity perceived in terms of its relevance to humans, especially when it is brought closer to public action (and less so when it remains solely at the level of citizen concern or militancy to reject the established order), show the attractiveness of the environmental issue. At a more localised level, we agree with B. Walker's observation: 'Regrettable as it may be, it is very likely that global concerns about biodiversity are ultimately reduced to a cost-benefit analysis' (Walker, 1992). While the analysis of our cases is not as cynical and unequivocal, we should nevertheless note the importance of ecosystem services (Daily, 1997; Costanza *et al*., 1997; Méral, 2012) which, consciously or not, regularly guide biodiversity protection action (or, at least, its justification).

The diversity of the actors involved: an impossible typology?

Biodiversity damage occurs in context, and most of the cases studied concern problem situations that bring together, or place back to back, actors who ally, complement or oppose each other. In addition to self-presentation in this context (and what each one claims to stand for), it seems interesting to look at the differentiated perceptions of actors in the way they carry out an action or react: who stands for what, how and why? Accepting a certain lack of finesse associated with the size of this transversal analysis, let us develop the typical positions observed in cases of biodiversity damage. First, cases sometimes emerge from citizen vigilance, which will gradually become organised and amplified. Although studies show that the environment remains a relatively secondary concern (Lascoumes, 2018), the register associated with ecology – i.e. the vocabulary used to designate a problem, or even the mobilisation of 'great causes' such as the fight against global warming or avoidance of natural disasters – makes it possible to legitimise a citizen concern. In the same vein, making a solution to a problem 'green' sometimes seems to act as an anaesthesia for potential critics. As an extension of citizen action, environmental associations play a dual role, both cultural (awareness-raising, mediation, organisation of protests, etc.) and interventionist (by directly or indirectly influencing public action, by participating in local consultations, by playing the role of a whistle-blower, etc.). Their action can be understood on a continuum ranging from the identification of the harm to the questioning of decision-makers, via public denunciation, the support of local negotiation groups, the impetus of objective alliances, the support of contestation, or the legal support of certain parties protecting the environment. In this panoply of actions, we have noted the necessary arbitration of the causes to be defended, first in distribution of resources and then in setting of priorities, which sometimes goes as far as disengaging from certain local struggles in order to favour more transversal causes or to avoid delegitimising associative action [case n°5 is symptomatic of this movement]. Then, on the side of public institutions, we can stress the degree of fragmentation of competences in environmental matters. We will analyse the links between public authorities and types of reaction to biodiversity damage in the last section. Finally, we note a crucial third actor in many of the cases studied: private companies. Unsurprisingly, they oscillate between being blamed for pollution, environmental nuisance or environmentally harmful developments, and truly taking into account the environmental impact of their activities. Here, the positions are also diverse, between involvement in sustainable management, neoliberal ambivalence, trickery and greenwashing (Aggeri, Saussoi, 2017). While it is impossible to show here the diversity of positioning on either side of the harm to biodiversity, we note that one issue runs through the cases we are studying: the common modalities of existence.

4.2.2. COHABITATION(S): accepting, transforming, claiming

The second axis of analysis concerns cohabitation – or, in the plural, the ways of existing in relation to biodiversity. This axis is distinguished by four essential questions: the nature of biodiversity (and more broadly of the environment) that is defended and accepted in the different cases dealt with; the ways of conceiving the idea of transformation of biodiversity or the reaction that aims to defend it; this defence in relation to the question of environmental inequalities; finally, the question of the tension between privatisation and commons.

What biodiversity are we ready to accept?

We discussed the tension between ordinary/remarkable nature earlier in this analysis, as well as the defence of biodiversity as it is related to humans. Let us now discuss the ways of conceiving biodiversity for what it is or what it should be. Here, we will conceptualise and empirically reposition positions on environmental protection that are as contrasting and tangential as conservationism or preservationism (or even utilitarianism or resourcing).

We have seen that the defence of nature for its own sake, or even of wilderness (for a distinction, see Dowie, 2011; Lévèque, 2017; Maris, 2018) - in other words nature without humans, assuming that it exists in the Anthropocene – is a rather rare case. Yet the arguments for this struggle for nature and for biological species are legion. Environmentalists argue for the efficient protection of wildlife regardless of what it yields, for a strong response to the sixth mass extinction (Leakey and Lewin, 1997). This ecocentric vision (Callicot, 1996; Larrère, 2000; Léopold, 1949) sometimes tends to exclude humans from nature, with a preservationist aim, but above all it is confronted with very complex realities on the ground that regularly undermine an idealised position or a protectionist mindset.

The case of the beaver, a building and transforming species if ever there was one [case 12], is symptomatic of the question of what biodiversity are ‘we’ willing to accept? The issue of invasive alien species [cases 9 and 10] questions the static vision of biodiversity, backed by a dynamic vision of the risks of damaging it. In addition, this point on cohabitation allows us to question the relationship between human development and protection of biodiversity [cases 3, 4, 7]. The case of reintroducing the European hamster [case 11] is also a paroxysmal example of environmental protection in a context of dominant human development (in this case, in connection with intensive agriculture). In all these case studies, the link between humans and nature – the civilised human, the opportunistic human, the hunter human, the economist human, the worried human, the saviour human; nature as a resource, nature as an aesthetic, nature as domesticated or bewildered, nature as abundant, nature as invasive, nature as harmful, nature as impoverished, nature as needing to be saved – is at stake. J. Delord (2003; 2005) argued for taking ‘wildness’ into account in an ethic of action that would aim to reconcile humans and the biosphere. Our case studies show that such a shared ethic is still a long way off, sometimes even among the main defenders of nature

Transformations: evidence, manners, management

While the question of the transformation of biodiversity – seen in a perpetual dynamic movement (cf. state of the art) – emerged in the previous point, it was posed in the immediate time, at the site of the damage studied. The question of transformation of a territory in the case of the degradation of grasslands [case n°7] or the public promotion of weeds in urban areas [case n°2], addresses the way a natural (or sometimes artificial [case n°1]), weakly or strongly used space [case n°8] is occupied. It is therefore a question of transformations. Three ways of looking at this question are possible.

Firstly, environmental transformations – sometimes clearly visible: an animal killed, a water source dried up, a concreting project, etc., sometimes quieter: a loss of environmental quality, a population decrease, a gradual degradation – indicate potential harm to the environment or, in this case, to biodiversity. Ecological changes refer to the impact of human activities on nature, or even of transformed nature on itself (for example, in the case of invasive species). While taking into account transformations alone as possible indicators of biodiversity loss runs the risk of extending the spectrum of possible damage (too widely), this approach allows us to study both 'natural' and 'human' transformations (or the intersection of the two, as in the case of long-term drifts of human practices [cases 2, 7, 9]). This perspective seems important for future interdisciplinary research projects.

Secondly, the transformation(s) can be seen in the ways of reacting, or even in the ways of living together. Each attack on biodiversity, once identified and made public, mobilises a certain number of people. They mobilise, interact, associate, influence, confront or ally each other at the same time as transforming each other. Perceptions (of other citizens, collectives or institutions; or of neighbouring non-human species) change, but these transformative interactions also affect ways of living in an environment co-constituted of different humans and even more different non-humans. This is the basis for nudging strategies [case 1], or even more broadly for prevention or sensibilisation campaigns [case 2]. Nevertheless, all the case analyses have shown that it is impossible to be inert when an environmental threat triggers (re)action: all the cases studied show an exit situation that is different from the initial observation. Indeed, even when the damage was identified as a risk linked to a future real estate or industrial project [case 3 and 4 for the most discreet transformations], it was postponed, modified or transformed.

Finally, some of the case studies led us to consider transformation in the way of thinking about environmental damage and the associated reaction, and therefore the morphosis of public policies (in particular, cases that were brought before the courts and/or received administrative treatment, which will be discussed in the last line of analysis [cases 13, 14, 15], but also those that led to changes in the future treatment of similar damage or to adaptations in strategies, first and foremost those that led to a legislative reform [case 5]. Here we are dealing with an issue of (sustainable) biodiversity management.

Let us note that in these three visions of the transformations, there is a regular tension between a necessarily local anchoring and aspirations for a response that goes beyond the specific case. Regularly, if the outcome of each case is dealt with here in its local component, we observe broader

desires to revegetate the city [case n°2], to continue the autonomous fight in all places [case n°4], to continue the ecological monitoring or to disseminate good practices.

Space(s) to defend and inequalities

Whatever the position defended in terms of biodiversity protection, the various cases studied often emerge from a form of struggle (identified as such or not) where one of the parties acts or reacts to (what it considers to be) an offence to biodiversity. This conflictual cohabitation is to be analysed as a set of issues related to appropriation of the territory (natural or artificial [case n°1]). The most flagrant cases of tension can be seen in the collective opposition to urbanisation of the territory (or even concrete development [case 3, 4]), which also calls for the promotion of artificial spaces conducive to the development of biodiversity (real estate developers and other industrialists defend a particular vision of 'natural spaces' [case 3, 4, 5]). The struggle is also embodied in the debates surrounding the use of a natural resource [case 5], and sometimes shows how the environmentalist argument can legitimise a position. This point is also an opportunity to examine the issues of protecting (or regulating, see next section) biodiversity, seen as a common good, in privatised territories (by legal means [cases 1, 3, 4, 14] or by tacit agreement [case 15]). This question will be extended in the following sub-point.

Based on the observation that 'there are social differentiations in exposure to nuisances and risks, as well as in access to environmental resources' (Emelianoff, 2008, 19, *our translation*), the various case studies can be studied in the sense that they reveal problem situations that have already been clarified by the stakeholders involved. As a result, a certain number of invisible – or invisibilised – biodiversity losses are not studied. More generally, these are blind spots in public policies. Indeed, policies and institutions cannot be held responsible for 'problems not yet established' (adds C. Emelianoff in an undated text).

Indeed, if the types of harm to biodiversity that we have selected are case studies for the CRIM-BIODIV project, it is because a collective of individuals, or a social reaction mechanism, has been set in motion. We can safely assume that some forms of environmental pollution, nuisance or degradation remain rarely or not denounced because of their discretion, the absence of designation as damage, the absence of human victims, or the absence of a resonance following a reaction. This observation is directly related to environmental inequalities (Bullard, 1994; Andrew, 1995; Martinez-Aliez, 2002), i.e. certain individuals or groups of individuals are both more subject to environmental risks, but also and above all are more legitimate in raising these risks (or these observations) as legitimate public problems (for a broader analysis, see Beck, 1992).

Who owns biodiversity? Privatisation, enjoyment and sharing

Cohabitation also refers, more prosaically, to the way that neighbouring individuals or groups share the territory and its resources; here, the conflict over a water source [case 5] or the desire to

strengthen private ownership of forests [case 14] are clear examples of territorialisation and the difficult sharing of natural resources. Other persons, often grouped in associations or collectives, defend the idea of a common good [case 3, 4], or plead, more modestly, for a more balanced sharing [case 1], where humans would erase some of their traces [case 2]. The question of ownership immediately leads to the question of the means put in place to ensure the proper maintenance (or sharing) of biodiversity (and ties in with the next axis). The question of property obviously refers directly to the nature of the sites in question: a natural resource exploitation site, a private pond, a parcel of building land that is also a natural area, a private forest zone for public use, etc., but it also raises broader issues.

'The modern era is marked by a multifaceted offensive against the common uses of nature', write J.-B. Fressoz, G. Graber, F. Locher and G. Quenet (2014, 21, our translation). A majority of the cases studied take place on private land (sometimes with management entrusted to the public in the case of forestry [cases n°6, 9, 10, 14, 15]). However, the demands of those who denounce the damage to biodiversity regularly call for the joint management of resources, the transparency of industrial (projects) activities or the sharing and rational use of nature. This tension between privatisation and commonality is a central issue in economic and social history (Polanyi, 1944).

In this respect, the concept of fencing is interesting in that it allows several cases to be considered together: in hunting, territorial fencing aims to keep large game in one place (and therefore to organise environmental damage); in industry, it makes potentially ecologically destructive practices invisible, but also protects (voluntarily or not) areas from all human activities; in environmental protection, fencing encourages good behaviour or circumscribes areas to be protected. We could also talk about fences that are more symbolic of the domestication of the wild, or of the enclosure of urban areas and the specialisation of surfaces (agricultural, residential or services) that do not offer ecological corridors favourable to biodiversity.

4.2.3. LEVERS: a panoply of reactions to biodiversity harm

The third axis echoes one of the pillars on which the research project was based, i.e. identification of the levers of individual, citizen, association and professional action in the face of threats to biodiversity and environmental standards. These levers are analysed in terms of the types of action or reaction observed in the case studies.

First of all, there is an impression of the extremely diffuse nature of environmental protection action – a 'grand strategy without a strategist' (Larrère, 2021, 7, our translation) – which is perhaps an effect of the methodology (case study situated) but which also informs both the fragmentation of competencies and the size of the field of possibilities in terms of infringement of biodiversity. Each damage has its own specificities, arises in a particular context and finds (or not) an original outcome.

Opposition, contentious or competitive

The forms of opposition to actions or projects identified as destroying biodiversity [cases 3, 4, 5] are extremely varied, and analysing the ways to build a struggle (type of argument developed and methods of dissemination, forms of resistance put in place) would mean continuing with the individual case studies.

Nevertheless, we can note a strong distinction. On the one hand, we find the temporary autonomous struggles – citizens, sometimes supported by the associative world – that advocate autonomy and action and favour the diversity of tactics (George, 2004; Dupuis-Deri, 2004) regularly consisting of taking rather than convincing (Corroyer, 2022). These forms of resistance, whether legal or illegal, often attribute little (or no) legitimacy to the established political order (Péchu, 2007). On the other hand, there are more self-interested forms of opposition (as development and competition issues appear) that are organised in a completely different, even opposing, way. Indeed, the competitive struggles do not take this autonomous and temporary form, but rather embrace the administrative and judicial fight, or play the politics of power. In both cases, the strategies of the *fait accompli* seem to show their effect.

Raising awareness, prevention, nudging

One aspect of the research was to identify the drivers of behavioural change in relation to the environment. In this respect, a real nudging campaign aimed at reducing the pollution of a water reservoir [case 1] was studied, both in terms of its genesis and the issues raised by this campaign. Another case studied the methods used to raise public awareness of biodiversity [case 2].

As mentioned in the state-of-the-art, from the outset of the research project, the question of nudging was identified as a fundamental issue. However, empirical studies have helped us gain a better understanding of the issue. While prevention of harmful behaviour towards biodiversity is frequently discussed, including both direct and indirect incitement, the stakeholders we encountered seem to rely on more 'traditional' methods such as negotiation, damage assessment, compensation attempts, and administrative or legal measures. It could be argued that this is a limitation of our research since we focused on cases where biodiversity harm was already identified rather than on prevention policies. Nevertheless, this finding is also a result of our research efforts.

Human management of the impact on (non-human) life

The issue of environmental management appears in many of the cases studied. For each case – invasive alien species [cases 9, 10], establishment of shooting plans for hunting [case 14], the issue of forest management [case 6], observation of poor management leading to new ways of occupying the territory [case 7], we analysed the partnerships set up (or, on the contrary, the desire to maintain one's own expertise), as well as the tensions and trade-offs that lead to the establishment of specific management standards (which vary according to the actors involved and the environmental issues).

All management issues are based on the observation that humans affect biodiversity. This relationship is sometimes seen negatively: the impact of humans on the state of the environment leads to the destruction of species or habitats; sometimes positively: the quality of biodiversity depends on human actions. These actions must therefore be governed by effective management standards for living organisms. Here, several management methods are possible, ranging from no action or reaction, reduction of anthropic pressure, or to the most enlightened possible government of the link between living humans and non-humans.

Reparation, compensation, repression, sanctions

Finally, when ecological damage – real or supposed – follows an infraction, different forms of reaction may be used (alone or in combination). When irreversible damage is found, forms of compensation are sometimes negotiated [case 8]. Again, methods to curb biodiversity damage emerge when the offence is characterised and the perpetrator identified [case n°10, 14], or else an administrative sanction is pronounced when the public prosecutor has not deemed it appropriate to initiate legal proceedings [case n°14], sometimes in the form of a sanction commensurate with the damage [case n°13] (which brings us back to the question of assessment).

This line of analysis ends with a double observation. The first is as much methodological as analytical (it has already been stated): the case studies deal with damage to biodiversity that has been identified as such by a certain number of stakeholders. A good number of damage or alterations that are quieter, less obvious or do not generate any reaction are therefore invisible. The second finding, which was also the basis of the research project, is that in almost every case studied there is a sentiment of impunity (or at least of an altered relationship of trust) with respect to the norm, the administration or politics. This feeling is the entry point for the following analytical axis.

Finally, whatever the response to biodiversity-destroying behaviour, the possibility of approaching a goal of no biodiversity loss (through a just and dissuasive sanction, through reparation or compensation) seems to come up against the impossibility of calculating ecological equivalence (Maron *et al.*, 2012).

4.2.4. INVISIBLE LOGICS: arrangements with norms, differential governance and the ecophagous society

The fourth and final axis of analysis focuses on the set of mechanisms and processes that underpin the establishment of environmental standards and their efficiency.

State of standards/administration

Firstly, we discuss the ways that the actors involved perceive the norms in force – norms governing the conditions that make the infringement legal or illegal, in particular – as well as the administrations that govern them. While this point refers in part to the first axis of analysis, it allows us to introduce the view of the actors we met regarding the shortcomings, the 'problems', the obstacles or the conditions for ineffectiveness of the protective norms in environmental matters. Indeed, in (almost) all cases, a set of legal, civil or administrative standards are mobilised (or sometimes rejected) and make it possible to define the nature of the harm (an infraction or not, a fault or not, etc.).

In addition to the importance of the situational anchoring of each attack – which conditions the diagnosis, its visibility, the type of people involved and the reaction, this localisation (sometimes very local, in the sense of a restricted network of 'entre-soi', sometimes more diffuse but intertwined) generates behavioural effects: more or less objective associations, ways to foster links of interdependence…

Role of the law

This second point concerns the place of the law in the selected case studies: when and how is the law mobilised (or, on the contrary, does it not constitute a privileged way of regulating the conflict or the violation)? Indeed, the law is everywhere in that it sets the 'rules of the game', but it is also often nowhere because of its complexity, inaccessibility or malleability. Both the judicialized cases [cases 4, 5, 10, 12, 13, 15] and the others are dealt with here. At a time when new specialised environmental courts are being set up, access to defence is also discussed. In the same vein (and continuing from the previous point), we also study the administrative route and administrative arbitration: what is the place of the (regional) administration in arbitration or in the management of infringements of biodiversity [cases n°1, 8, 14, notably]?

Beyond the strict question of the role of the law, it is the status of and relationship(s) to the norm that are questioned throughout the CRIM-BIODIV research. What is a deviation from environmental (or legal, social, cultural) norms and what are the tools for measuring or redressing it? This point will be discussed in the conclusion of this transversal analysis – which is more of an opening than a closing.

Differential management

Invisible logic if there is one, this point deals with differential management (of illegalities, in particular, but more broadly of harm in the broad sense) to answer a question that recurs in cases that bring together (or even confront) actors of very different statuses: citizens, environmental protection associations or 'petty' offenders [case 15, or 10 and 13 on this point] versus influential economic or political groups [case 3, 4, 5, 14]. Whether this differential management is proven, suspected or fantasised, it allows us to account for the major lines of force and tensions in the regulation of biodiversity damage.

Let us return to the term 'illegalism' which refers, at the same time, to a mode of transgression and a type of social reaction. This allows us to consider that forms of transgression and the responses to them are constructed socio-historically. M. Foucault shows that each social class has its own forms of transgression and its own ways of dealing with these transgressions. There are two forms of illegality: illegality of goods (theft, violent appropriation of other people's property); and illegality of rights (fraud, tax evasion, irregular commercial operations). The first form would be the prerogative of the working classes and lead to criminal sanctions, pronounced by the ordinary courts. The second ones would be the product of the dominant classes and enjoy another form of regulation, by specialised instances (outside criminal law). Our case studies [in particular the comparison of cases n°14 and 15] show, in fact, a differential management of harm to biodiversity, due to the perception of the behaviour at the origin of the damage and/or the offender.

Several case studies also show incentive mechanisms, more or less overt, aimed at allowing or encouraging the commission of biodiversity degradation or providing the keys to a defensive argument in the event of designation as responsible for environmental damage. Legal entity entrepreneurs (Becker, 1963): hunters' clubs, representatives of associations, industrial groups, etc. then act to reinforce norms of conduct (and/or law) that are potentially harmful to biodiversity. The interplay with norms (particularly legal norms), identified by the study of the differential treatment of illegalisms, then take on a different hue as part of a programme to influence practices (political, cultural, social and economic).

Individual(s) or structure(s)?

Finally, the closing point of the transversal analysis looks at the distinction between cases where individuals are identified as the perpetrators of environmental damage [cases 1, 2, 10, 12, 13, 15]; cases where individuals are associated with a broader human development movement [cases 3, 4, 5, 14]; and cases where the damage is directly associated with the structural forces of the contemporary world [cases 6, 7, 8, 9, 11]. A first, prosaic question aims to identify whether the levers of action or reaction differ according to this distinction. A second, much more overarching question is the (non-)place of environmental defence in a contemporary neo-liberal capitalist world. The incompatibility of languages – economic or liberal on the one hand; ecological and solidarity-based on the other – is analysed, particularly through attempts to incorporate language that is a priori incompatible with its

own raison d'être: greenwashing or genuine ecologisation of economic and political practices? 'No significant ethical change has ever occurred without an intimate reshaping of our loyalties, affections, interests and intellectual convictions. […] In our efforts to make ecology easy, we have made it paltry', wrote A. Leopold (1949, 265, our translation).

Conclusion/opening of the transversal analysis

> *'Territory incorporates everything that humans have done, what they have allowed to be done, voluntarily or not, and that is difficult to predict. The same applies to territories and animals [we add: biodiversity and species] as to categories: all of this explodes; it would be difficult to deduce a coherent, detailed political action from it'* (Mathevet, Bondon, 2022, 13, our translation).

In his *Essai sur l'histoire humaine de la nature*, S. Moscovici (1968) described the contemporary era as being marked by the 'natural question' – the successor to the political and social questions of past centuries. The natural question – i.e. the examination of human cohabitation(s) in a natural and biodiverse ecosystem, and its impact in the Anthropocene era – specifically addresses the social, cultural and political organisation of the world. Indeed, the very fact of anchoring this question in the Anthropocene, *i.e.* the geological epoch marked by human influence on ecosystems (Crutzen, 2000 ; Crutzen, Stoermer, 2002), implies that we are seeking to decipher the transformations of nature (and its diversity) by humans. These transformations mirror the question of stabilisation, and therefore of norm(s). In fact, the CRIM-BIODIV research project shows that threat to biodiversity and the social reactions it generates constantly question the relation to the norm.

This relation to the norm can be analysed by interrogating our material through the philosophico-medical analysis grid of G. Canguilhem in *Le Normal et le Pathologique* (2013) – this is, in any case, the proposal of a member of this research project's scientific committee, for which we extend our thanks here. Can the terms 'normal' and 'pathological' be replaced by 'equilibrium' and 'harm', especially in the first question that G. Canguilhem intends to address, by questioning A. Comte's postulate: 'Is the pathological state only a quantitative modification of the normal state? By questioning the variations of normality in this way, the author proposes a qualitative distinction: the anomalous (anomaly, exceptionality, without normative judgement) would differ from the abnormal (infringement of the norm that hinders proper organic functioning). The ambiguity of the norm – the latter being included in the definition of normality – lies in the fact that it is not merely descriptive but fundamentally prescriptive. Above all, it claims that any declaration of a pathological (abnormal) state constitutes a normative judgment. 'In matters of biological norms, it is always the individual who must be referred to' (Canguilhem, 2013, 118). However, let us note here the difficulty of directly questioning biodiversity or threatened species! Here, the (quantitative or qualitative) deviation from the norm only becomes a harm when an individual or a group of individuals – speaking in the name of

biodiversity or instrumentalising it – declares this harm as such. But G. Canguilhem informs us that an out-of-norm – transformed – state is not synonymous with a sick or endangered nature. It is rather the alteration of a function or state that announces the threat. However, most attempts to objectify a harm to biodiversity involve a diagnosis, which is itself often supported by surveys, population monitoring, counts and other quantification tools (reductionist, as G. Canguilhem would say). If the anomalous (variation or transformation) can become abnormal (damage or harm), this vision through numbers partly prevents us from thinking about both the qualitative (pathological) disturbance induced by humans on the state of biodiversity (at a local level, for example) and the transformations linked to the natural evolution of a healthy state. Moreover, normal – or equilibrium (homeostasis) – refers both to this healthy state (non-diseased, in a vision of physiological health) and to the adaptability (in a more social or dynamic conception) of individuals or species.

Taking an interest in the harm done to biodiversity (and the reactions they produce) requires us to navigate between the natural sciences (their technicality, rationality and scientistic aspirations) and the human sciences (taking into account human variability, their reflexivity and their involvement in the social world), oscillating between objective (dys)qualifications and subjective (dys)qualifications of the states of biodiversity. In this perspective, it seems appropriate to pursue the interdisciplinary dialogue – of which this research is only a first step – and organise the opportunities and capacities for transdisciplinary encounters, or even to admit disciplinary transgressions or the emergence of new epistemologies outside the existing disciplinary frameworks – following the example, for example, of a new criminological grammar conveyed via green criminology (‘harm’) or zemiology (‘social blame’).

Thus, the meeting between two fields of science – life or human – in the framework of CRIM-BIODIV research questions disciplinary disruptions in two ways: within the same field of study, for example criminology, and in the confrontation with other ways of apprehending living, human and social realities. The consequences of these disciplinary challenges are not solely outside the ground. They involve (re)problematisations of societal orders. At a time when specialised environmental jurisdictions are being created or debates are taking place on the creation of the legal offence of ecocide, the tension inherent in the criminological discipline, in virtue of extending the notion of crime through the concept of harm (legal or illegal, intentional or not, malicious or not, etc.), raises the question of the relevance of integrating into judicial, penal and administrative reforms forms of harm that may appear to be in strict compliance with the laws in force. More generally, awareness of the environmental threat – of which the decline in biodiversity is a major issue – calls into question both the structuring of scientific knowledge and the incentives for public and citizen action.

4.3. Tool: description and functioning

This section on the results of the tool follows the same structure as the 'Methodology' chapter and is therefore divided into the same three stages as the initial report: design (defining and setting up the tool), testing and evaluation (of the tool and its impact on users).

4.3.1. Designing the instrument

Identifying the needs

The needs and limits of the tool were identified based on the results of the state of the art as well as meetings with actors on the ground, primarily associations, as a part of the tool subproject. These results are summarised in the following sections.

Summary of the state of the art

One of the first findings to come out of the review carried out at the start of the project is the diversity of existing tools and initiatives dealing with 'protection of biodiversity' in Belgium and abroad. Additionally, this exploratory research allowed us to define the main variables that are testament to this diversity: the contents, the approach and the format (see Figure 2 below). The choice of these parameters defines the tool's success: its accessibility, its relevance to the situation at hand, the added value for the issue at stake, etc.

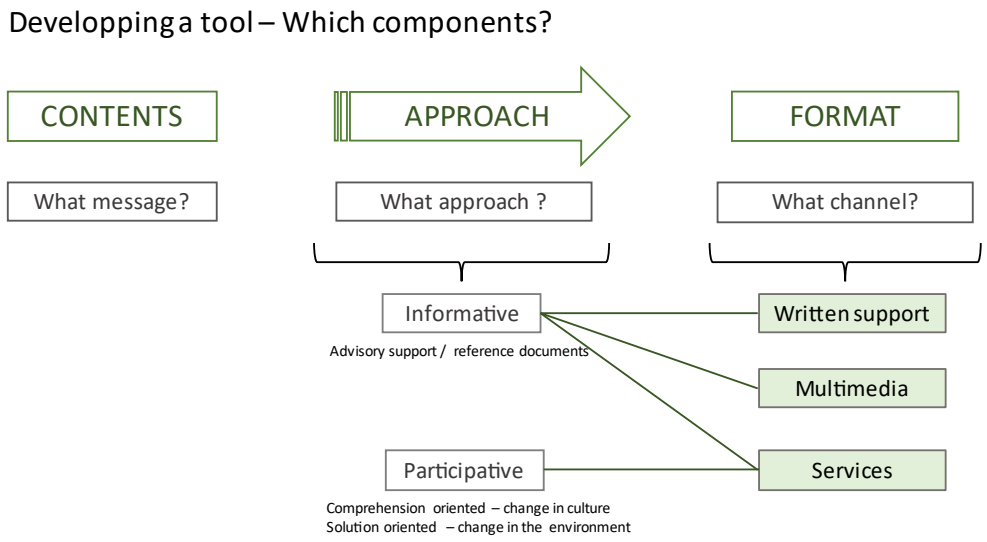


Figure 2 – Main components to consider when developing a tool (resulting of comparison between tools during the exploratory phase)

Only some of the many sources available provide direct information on the 'response to infringements through analysis of the circumstances of harm' (presented in the chapter about the state of the art). Most of these tools are written sources with an informative approach. There is little multimedia content and an apparent lack of centralised services dedicated to the issue of harm. Below is a summary by region, as well as some points of comparison that can fuel the tool process. In addition to the research findings on existing tools, the overview also includes a summary of the main civil organisations and institutional actors under whose purview the different types of harm fall, according to the information presented on their websites.

Wallonia

Below is a summary diagram (see Figure 3) of the information that was found on the tools and the relevant stakeholders that can provide support in responding to harm in Wallonia.

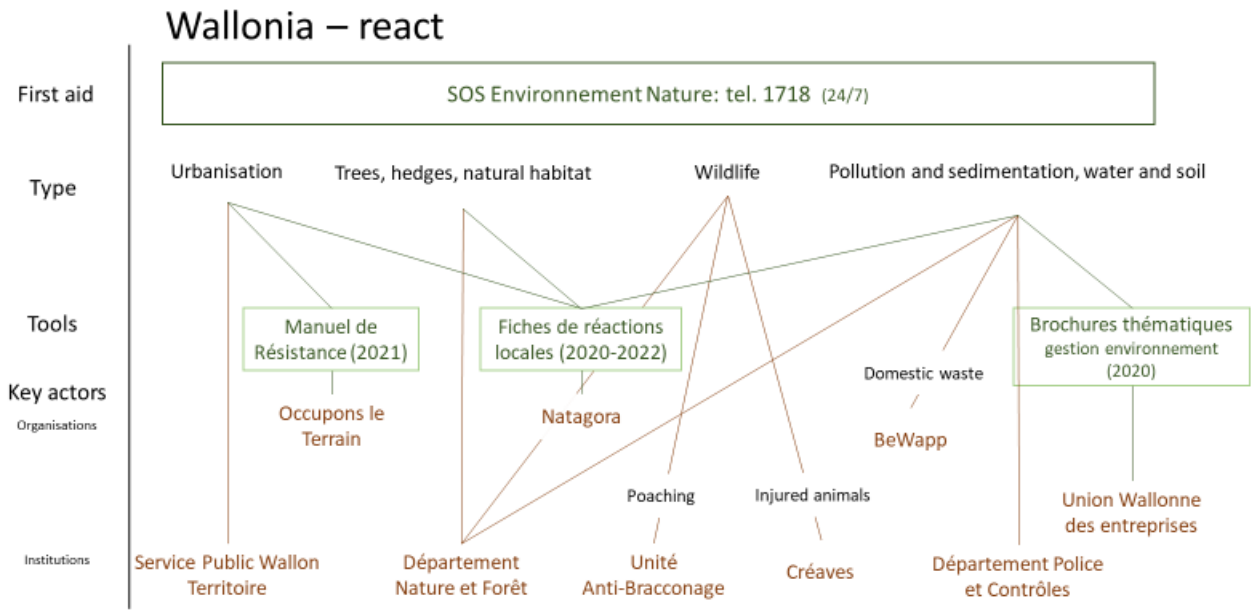


Figure 3 – First aid contact, main tools and key actors in Wallonia, for reaction in case of damage to biodiversity

The tools provided by the regional departments are not numerous. A few FAQ pages feature disparate information on certain topics, with low visibility (access to this information through other searches, e.g., 'support for administrative procedures'). Furthermore, the division of responsibilities between the different departments is not clearly described on the umbrella websites. The main tool featured on the websites is the 'numéro vert 1718' ('1718 green helpline'), which corresponds to the Walloon Region phone number and is presented as the 'SOS-Environnement-Nature helpline' on the Service

Public Wallon de l'Environnement's website. Moreover, Wallonia is the only region to benefit from a sizeable 'biodiversity online portal' which presents a rich showcase.

Some other organisations, on the other hand, provide written support and guidance documents for people or collectives to respond to environmental harm (Occupons le Terrain, Union Wallonne des Entreprises) or more specifically to infringements against biodiversity (Natagora). These associations also encourage readers to contact them by email or phone in the case of requests. Natagora even provides a 'local response service' based in Brussels. We also found several journals, sites or civic actions set up by more local organisations in an effort to share field knowledge. These resources sometimes assume the perspective of responses to biodiversity loss or harm. As these are more diffuse resources that have not been thoroughly researched, they are not featured in this report.

Brussels

Below is a summary diagram (see Figure 4) of the information that was found on the tools and the relevant stakeholders that can provide support in responding to harm in the Brussels Region.

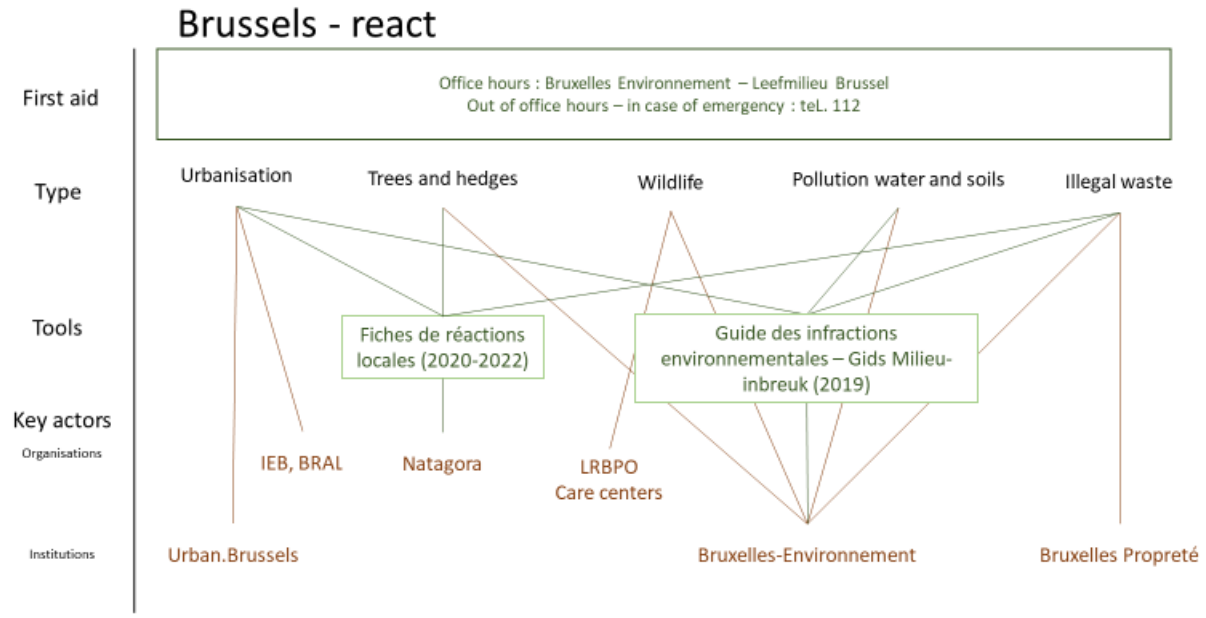


Figure 4 – First aid contacts, main tools and key actors in Brussels, for reaction in case of damage to biodiveristy

The environmental departments of the Brussels Region are clearly centralised under the aegis of the 'Brussels Environment' agency. This is thanks to the size of the region: the actor operates in a uniform manner throughout the territory and is highly visible through a multitude of actions that are reported with the generic name of the agency, even if they are carried out by different subdepartments. For instance, 'Brussels Environment' provides many informative documents on its often very complete and comprehensive web pages, although the access path may be winding at times; it also offers an internal support line that addresses questions and redirects callers to the relevant departments. What seems to be missing is a clear interface that compiles and summarises the key information.

When it comes to associations, Natagora is at the forefront, thanks to its local report forms and the 'local response service' available in its Brussels offices. Furthermore, it has links to a multitude of websites and books that discuss mobilisation against urbanisation and which could inspire action or response to harm, but they will not be addressed in this document for the same reasons as above.

Flanders

Below is a summary diagram (see Figure 5) of the information that was found on the tools and the relevant stakeholders that can provide support in responding to harm in Flanders.

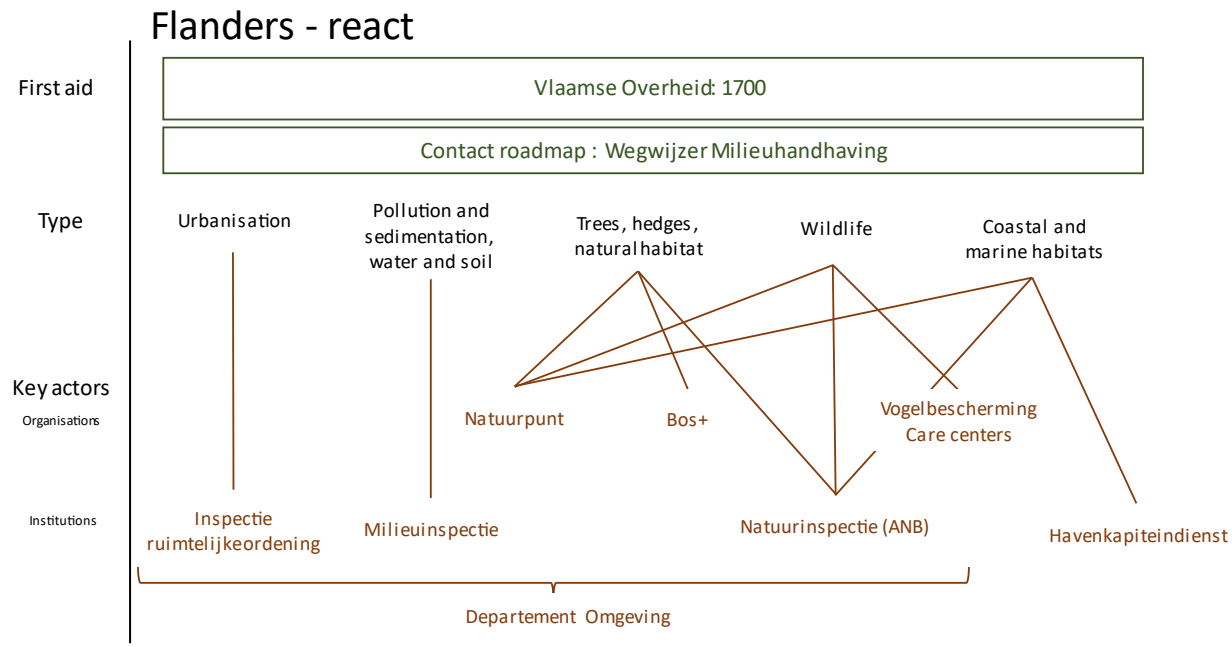


Figure 5 – First aid contact and Key actors in Flanders, for reaction in case of damage to biodiversity

Flanders has ensured that its regional environmental services have a high profile. The main tool of 'Departement Omgeving' is the 'wegwijzer milieuhandhaving', which redirects questions related to 'nuisance and pollution' (terms used in its presentation) but also indirectly features the sources that cause harm to biodiversity. Similar to in the other two regions, 'nature and biodiversity' only take up a small amount of space under the umbrella of 'environmental' issues, focusing mostly on the impact of urbanisation and industrialisation due to the 'nuisance' they cause for humans. The website of the 'Agentschap Natuur en Bos' subdepartment focuses on conveying a positive image of nature, mostly for recreational purposes, but clearly redirects questions about 'Policy, information and services' to a separate web page that deals with any questions about legislation and procedures. The information provided is clear and concise, and it features the email addresses and phone numbers of the responsible departments for any additional questions.

Associations in Flanders presently do not seem to provide support tools for responding to harm. In many cases, however, they set up or support 'concrete action' initiatives for biodiversity with a view to integrating as many different stakeholders as possible by reaching out to the corporate world

(active awareness initiatives such as #Samen voor de Biodiversiteit, 'Maai mei niet', 'Week van de bij', etc.). These initiatives will not be discussed further in this document.

Results of meetings with actors on the ground

The meetings we organised confirm the associations' role as invaluable observers, builders, critics and creatives, acting as a citizens' watch and advisers by sharing their field expertise and their commitment to the cause. The content they create or provide and use is an invaluable resource for individual people and public partners alike, while they can also offer an enriching and in some cases much needed political counterweight for the latter.

Wallonia

We set up meetings with the following stakeholders: Canopea, Natagora, Ligue Royale de la Protection des Oiseaux, Occupons le Terrain but also Cercle des Naturalistes de Belgique, Lesse Nature et Patrimoine, L'Observatoire de l'Environnement Arlon, Ecovie and Environnement Dyle.

The meetings with Natagora and Occupons le terrain concerning the work they did on their tools and the feedback they received from users resulted in two main conclusions: first of all, it requires expertise and a great deal of time-consuming work to keep these tools accurate and up to date. Regular follow-up is needed on the regulatory and administrative sections to ensure that they are compliant and that users are confident using the information provided. Secondly, the demand for guidance remains despite the existence of these tools, which provide no substite for listening and guidance that can be provided through interactions in workshops, training or services. Indeed, these tools are predominantly used by stakeholders who previously drew impetus and inspiration from 'human' interactions.

Another notable comment is the need to invest in 'positive actions' ahead of the issue to avoid losing momentum down the road: raising awareness about change, looking after the natural environment, repairing urban and industrial landscapes, etc. Finally, a clear call appears: it is crucial to contain the risk of harm, because once the harm is done, 'it is too late, we have already lost'.

Brussels

We set up meetings with the following stakeholders: Natagora Brussels, Ligue Royale de la Protection des Oiseaux, Brussels Environment but also BRAL and Avocats Sans Frontières.

The feedback about the Brussels Region is particular because of its status as region/city. The main threat for biodiversity is the loss of space and natural elements, as well as the loss of habitat and shelter for the many species that live in this particular environment. The challenge is to organise cohabitation down to the square metre. As in every city, 'nimbyism' is the most powerful driver of response, because the few natural elements that are available nearby change more dramatically than

in rural environments. For less visible cases, it is up to associations and collectives to take action, just like in the other regions.

One of the main points raised is the need to integrate a consideration of the impacts on biodiversity before urban planning begins, to ensure that it is taken into account in the building process of new urban projects, to improve quality and save time, and avoid having to undo harm or fight neighbourhood battles between nature and urban development in the future. Consequently, there is a need for expert human resources who can carry out the necessary environmental assessments linked to granting of permits, and who can develop support tools for the assessment, such as 'biodiversity ratios' to integrate a long-term component in building procedures that ensures consistency in the city's overall urban planning (such as green and blue belts for ecological corridors between municipalities).

Flanders

We set up meetings with the following stakeholders: Natuurpunt, Vogelbescherming, Bond Beter Leefmilieu but also Dryade

The feedback from associations appears to be more positive in this region. The regional departments redirect many questions, and the information is provided in a clear and concise manner, which empowers people. As a result, associations are mostly consulted about specific cases and questions, or for additional advice on particular cases, in which the advice of the authorities or the action they took is called into question. It is worth noting that this role was identified in all three regions and that it is an intrinsic part of the role of collectives and associations as a citizens' watch, as explained in the methodology.

Summary of the results

Types of response

Response occurs in proportion to the visibility of the harm. Harm is perceived as the difference between the previous state and the current state. Taking ownership or active response occurs as soon as the harm is visible or it is made visible (through the use of evidence, media tools, education/awareness raising about biodiversity in the landscape, etc.). The more visible the harm, the more it will mobilise the community, elicit a response and require means for monitoring, procedures and information services for problem management.

Consequently, the need for action lies on two complementary axes, as shown in Figure 6 below.

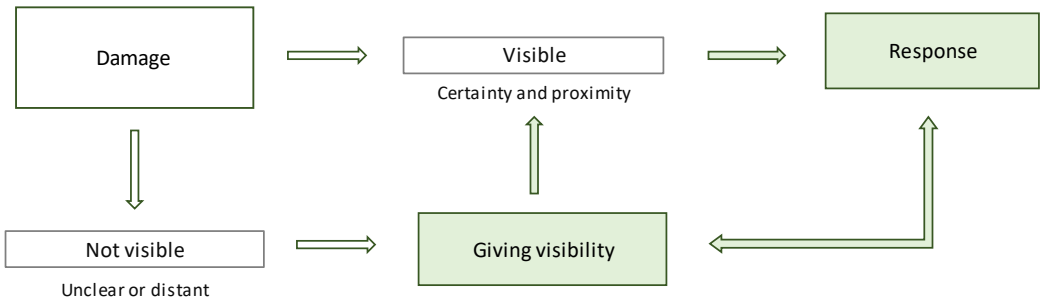


Figure 6 – Illustration of how the visibility of the damage leads to a response: two complementary axes in taking action

- Making harm visible because it is:
    - Unclear: it is invisible to the naked eye (e.g., water pollution) or there is a lack of follow-up (e.g., loss of species after land clearing - proof of the previous situation?).
    - In a remote location (non-perceived changes).

Advance work in the form of education and awareness raising is therefore crucial, as well as monitoring species and following up communities (Life projects) on the ground, in order to draw more attention to the loss of biodiversity in our landscapes caused by silent daily harm and to gather usable data to document cases of harm.

- Response: taking action to demonstrate harm (or making it visible to other stakeholders): filing complaints, producing evidence, following up the case.

Visibility is linked to the proximity of the observer to the changing environment: it is where they live, walk, work, travel, study, etc. Therefore most requests have to do with the primary issue of spatial planning: urbanisation. They are followed by questions related to trees, hedges, forests, pollution and waste, as well as cases of injured or endangered wildlife.

Many responses also have to do with other topics: health/living environment (air and water pollution), food sovereignty (water and soil pollution, pesticides), the appearance and recreational use of living environments (overbuilding, tree cutting, illegal waste). Biodiversity is sometimes drawn into the discussion as an additional argument or as a co-signer of a human-centred request. However, these responses represent significant awareness-raising potential for the related issue of loss of biodiversity, which is triggered by the same causes.

Needs and levers

The results of the analysis of the current situation and the meetings held with the main actors on the ground uncover several problem areas, needs, concerns and questions with respect to how to help analyse cases of harm and provide guidance on how to respond to this harm.

The main problem detected in all three regions is that of the limitations of a generalised approach to an issue where there is insufficient support for specific cases. This is due to the limitations of an analysis tool that aims to 'simplify' procedures, while the normative and administrative framework is currently inadequate. The main request is for increased human and financial resources within institutions, with a view to guiding uninformed people and exploiting their potential to learn about the issue through 'textbook cases' on the one hand, and, on the other hand, guiding collectives and associations in specific cases by providing access to legal support and follow-up of the case management, ensuring transparency and a joint effort between political, scientific and conservation experts.

Since this issue is outside the scope of this project, Figure 7 below indicates the points of intersection between the state of the art and the meetings with actors on the ground.

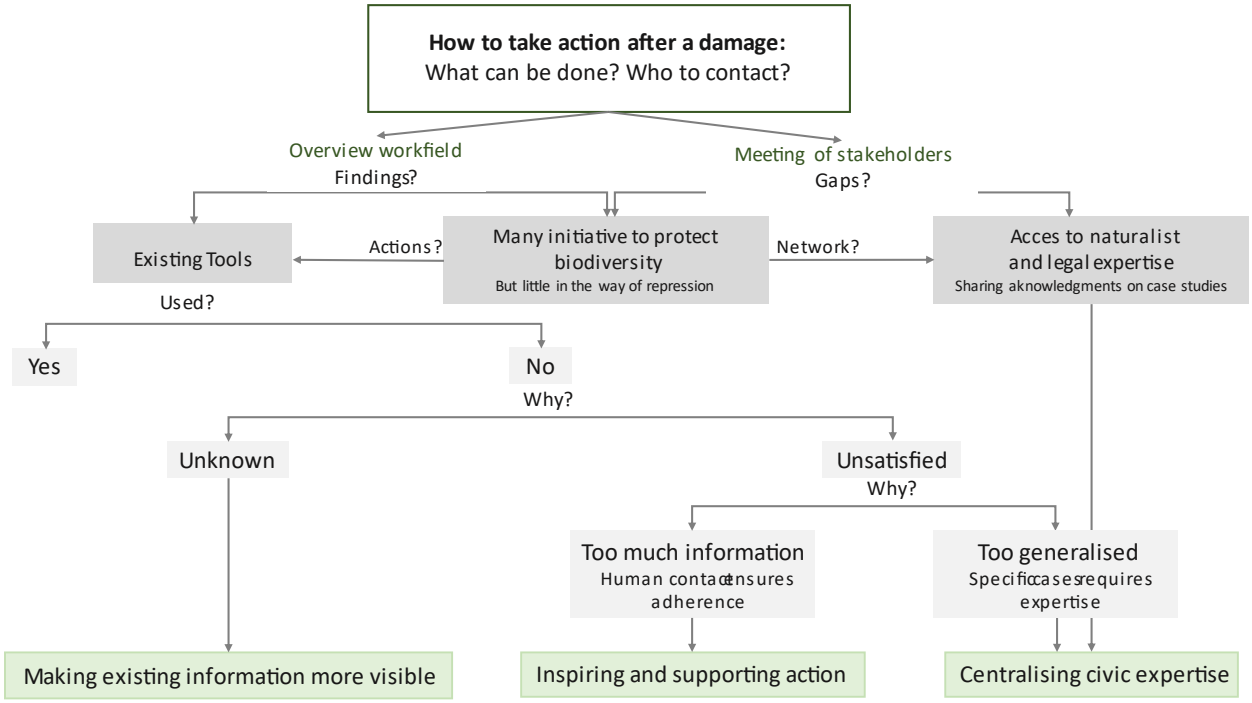


Figure 7 – Results of the search to identify needs in the response to damage to biodiversity

The first observation is a lack of visibility and centralisation in existing tools (particularly in the Walloon Region). This echoes the observation that many different initiatives are taken to protect biodiversity in Belgium, which can create a sense of fragmentation or confusion between stakeholders. This leads us to the main need between actors on the ground: networking between territories, helping and supporting each other in terms of technical or legal expertise for emblematic or specific cases that require a particular follow-up and aren't quite 'textbook cases'. Based on these observations, various potential subprojects have been defined when considering what the tool's limits will be:

- Centralising civic expertise: This lever was examined with a group of associations working in conservation projects or mobilisation in Wallonia, through the organisation of a task force that met on four occasions between June and September 2022. The team discussed the creation of digital tools to allow the pooling of necessary expertise during the guidance phase and the analysis of observed harm. In anticipation of technical and legal guidance services for environmental issues, this tool could provide support and guidance for numerous local cases through shared expertise and experiences. It was concluded that this project was beyond the scope of the CRIM-BIODIV project in terms of time and resources. This idea was therefore discarded.
- Inspiring and supporting action: This lever was examined with the mission managers actively involved in this issue by the legal and naturalistic approach at Canopea and certain other interviewed stakeholders. The objective of this project was to 'set up a directory of actions by sharing experiences' during a series of informal encounters between individual activists and civil organisations focusing on concrete cases presented by an association actively working in an area related to harm, based on a certain pre-defined approach (questioning or informative) and experience sharing (obstacles, learnings and accomplishments) with regard to the selected case. This was an opportunity for exchanges between actors, building shared expertise on the rights and resources of civic movements and associations working to respond to (or prevent) harm, and getting the most from lessons at the level of the territories, reinforcing networks as one of the most stable and sustainable forms of support to action. After the organisation of a trial event in December 2022, it was concluded that this project was out of the scope of the CRIM-BIODIV project due to its non-generalist and non-exhaustive nature. This idea was therefore discarded.
- Making existing information more visible: This project is most compatible with the format of the CRIM-BIODIV project, given the results of the needs identification. This project was discussed with the Canopea communications team in order to determine the most appropriate format based on the results of the state of the art. Finally, it was decided that the existing body of information should be centralised by region on a digital showcase page that enables the various stakeholders to be inspired by initiatives or organisations in the other regions, or to make certain underrepresented types of harm more visible.

Development of the tool

Design - defining the different components of the tool

The CRIM-BIODIV TOOL project can ultimately be defined as follows: to centralise the tools and actions/organisations and make them visible in an online tool that can accommodate information from a variety of sources such as existing tools, mapping of actions, mapping of stakeholders, bibliographies and documentation.

Content

The content is based on the state of the art: the available tools and actors currently operating in the different regions. The objective is to give access to all available information in a centralised manner, by region and by type of harm.

- Harm and response – What constitutes harm to biodiversity? What type of harm occurs in a certain context?
- The current situation by region: listing the available tools that provide information on the following: practicable legislation, procedures to be followed and who to contact in case of harm to biodiversity, organised by region. The tool will also feature simplified diagrams listing the main civil organisations and institutional actors who serve as a reference for different types of harm (see figures 3, 4 and 5).

Approach

In order to fine-tune the approach, two questions need to be addressed: what demand does the tool meet and who is the target audience?

The tool is trying to meet the following demand: helping stakeholders respond to cases of harm. This implies the need for a simple, quick and complete access. As a result, the structure of the available data had to be consistent and cover all areas in a homogeneous and exhaustive manner. One of the main challenges was not to drown the user in redundant or irrelevant data and to guide them as closely as possible to the appropriate information.

The target audience is the following: individual people, collectives or associations wondering what to do or whom to contact in order to respond to harm to biodiversity in Belgium, in case of assumed or verified harm.

Format

From a more technical point of view, the tool is a publicly accessible website containing several information pages structured according to the architecture laid out below (Figure 8) with details of the tabs, themes and sub-themes that are to be found therein:

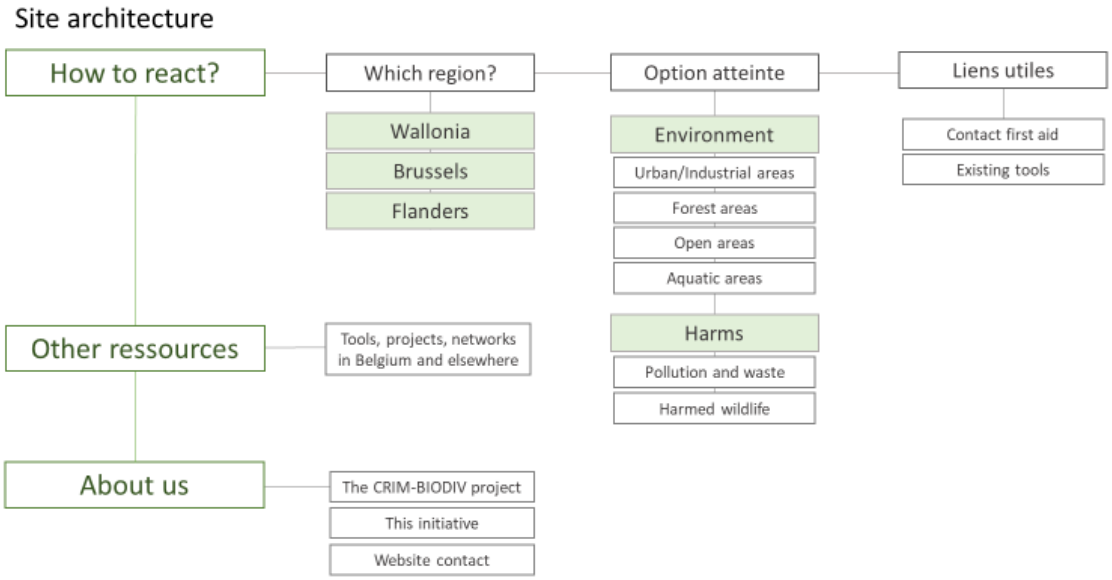


Figure 8 – Architecture of the site

Development of the tool - technical support for the format

This website was developed with the help of the Canopea communications team. For a period of eight weeks, they worked on this project with assistance from certain mission managers to revise the content and present the information and suggested sources.

Final result

The 'CRIM-BIODIV: assisting response' website can be accessed through this link: www.crimbiodiv.be/

Communication/deployment of the tool

The website is hosted on an external domain and embedded in the CRIM-BIODIV project website, as well as on Canopea's projects page.

The tool can be presented and integrated into multiple activities organised by Canopea:

- Lifelong Learning and civic actions around biodiversity issues (public: individual people, municipalities, government actors, professionals from the spatial planning or building industry, associations and collectives, politicians, businesses, etc.).

- Communication campaign around the release of this tool on Canopea's communication platforms.
- Federation network: members and partners in Wallonia, partners in Brussels and Flanders.

After the project CRIM-BIODIV is completed, the tool can be maintained and further developed by the Canopea communications team and its mission managers. The site can be updated with new information on the issue of harm in the future, such as:

- An updated bibliography and documentation on the issue, educational material.
- A newly created directory of actions based on actual cases experienced by associations and collectives.
- A mapping of actions taken on the ground

4.3.2. Testing of the instrument

The objective of the test was to take into account the opinion of the tool's future users given during the design phase, and to ensure its usability in the long run. The feedback was collected at different points in time and at different levels.

We organised a discussion with a group of Canopea mission managers (responsible for biodiversity, spatial planning, lifelong learning and mobilisation) in early January to test the approach and the format of the content before the architecture of the website had been defined. We then presented it to various users for appreciation and feedback in order to implement minor adjustments and to consider future improvements.

4.3.3. Evaluation of the instrument

This last project phase comprises two evaluation levels. Firstly, there is the evaluation of the tool in terms of its format and its use. Secondly, there is the reflexion on the impact of this tool on its users.

Content, format and approach of the tool

The approach based on meetings with actors on the ground prompted a reflection on the limitations of simplification when it comes to complex issues. The relevance of taking an overall approach was questioned as it can lead to a reductive culture, which does not reflect the diversity of natural systems, as described in this text published in the preface of 'Environmental issue series no.9' by the European Environment Agency (1999): *'Anyone trying to comprehend the problems of the environment might well be bewildered by their number, variety and complication. There is a natural temptation to try to reduce them to simpler, more manageable elements, as with computer simulations. This, after all, has been the successful programme of Western science and technology up to now. But environmental*

problems have features which prevent reductionist approaches from having any but the most limited useful effect.'

Impact on its users

The website of the Walloon Region features the following passage on environmental education: 'The way to help people acquire the skills that will enable them to adopt responsible behaviour with regard to the environment consists of four steps: discovery, understanding, judgement and action.'

The CRIM-BIODIV tool assists with these four steps: making people discover, helping them to understand, empowering them to make decisions and guiding them in taking action. Armed with knowledge and direct levers, the user uncovers the potential to take action, fuelling their 'intention to act' to the point of developing 'responsible environmental behaviour' in situations of assumed or verified harm. (cf. Figure 9 below showing *The model of responsible environmental behaviour,* Hines *et al.*, 1987).

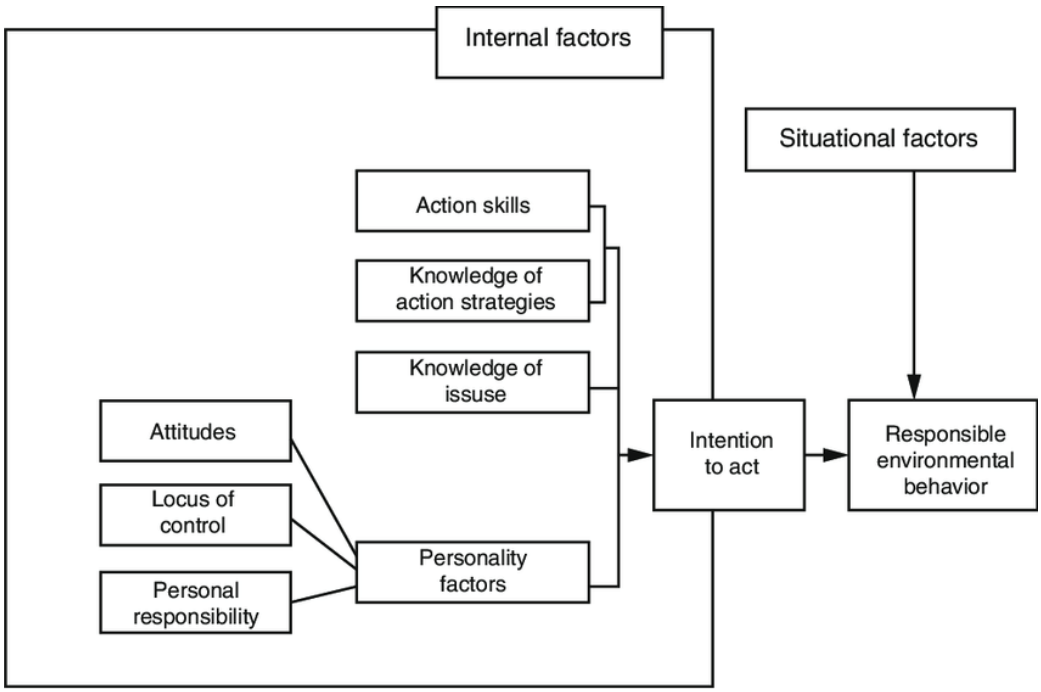


Figure 9 - The model of responsible environmental behaviour, Hines et al. (1987)

To support this, the 'Practical guide to effective behavior change: How to apply theory- and evidence-based behavior change methods in an intervention' (Kok, 2014) puts forward various 'methods of change' as levers for behavioural changes. Through its format and its objectives, the tool at the end seems to contribute to two methods in particular: facilitation by *'creating an environment that makes the action easier or reduces barriers to actions'* and giving technical assistance by *'providing technical means to achieve desired behavior'*.

These theoretical approaches are confirmed by the summary of the interviews, in which the following is described: *'The more the harm is (made) visible, the more it will mobilise and elicit response, which means that more support tools will be needed to follow up on the procedures or information services for problem management.'* In this way the tool helps make issues more visible and give stakeholders more confidence in their power to act. More specifically, the tool helps potential users move beyond the fragmented expertise landscape and the lack of clarity in access to information needed to follow-up environmental disputes. It offers potential for evolution towards the development of centralised and highly visible state services that can take up this guidance role from local to global level. When they use the information on the site, leading to the contact persons and procedures of the different existing services, the individual acquires a real lever: demand creating supply and, in doing so, giving a rightful place to the issue within the evolution of our society.

4.4. Recommendations

At the end of this two-year project, we make the following recommendations in terms of : 1. Regulatory framework, legal and administrative procedures ; 2. Scientific research ; and 3. Non-profit sector.

Regulatory framework, legal and administrative procedures

The analysis of numerous cases showed that legal texts were difficult to access for several actors in the field, for reasons of accessibility and/or the complexity of environmental matters. Yet access to the law is a major democratic issue. In addition, the complexity of environmental issues is not easily reflected in the legal tools. In this case, 'biodiversity' is in fact defined in extremely varied ways depending on the case studied, and its protection calls for legal and judicial notions that are at the same time scattered, technical and complex. This first recommendation thus concerns a better understanding of the language between legislative, legal, association and scientific actors.

> → *Recommendation No. 1: Improve access to the law in the area of environmental protection and work on transcribing the complexity of the subject matter through the legal system; in this case, biodiversity and its impacts.*

Protection of biodiversity is a major issue. The case studies dealt with in this research are only a tiny part of the contemporary threats to biodiversity (and some cases have shown the failure of this protection through lack of vigilance, management or concrete action in the past). In this respect, ordinary nature is particularly sensitive, both because the attacks affecting it are less visible and because it benefits from less effective protection than rare or threatened species. It is important to measure the urgency of protecting ordinary biodiversity to make sure that it does not become the remarkable nature of tomorrow. In this respect, two areas of work seem to be priorities: consultation with the various administrative stakeholders in order to objectify threats and assess environmental risks; and simplification of conservation statutes in favour of strong standards.

> → *Recommendation No. 2: Accelerate discussions on the regulatory framework(s) and legal tools for protecting biodiversity, taking into account the dynamic aspect of biodiversity.*

The CRIM-BIODIV research showed the significant gap between legal standards (legal and administrative texts and procedures) and the knowledge of stakeholders in the field (professionals directly concerned, or even more so, citizens, industrialists or professionals who find themselves faced with damage to biodiversity). The most active stakeholders in environmental protection and vigilance (associations, naturalists, law enforcement professionals, environmental officers, etc.) also regret that they are only rarely consulted, either because there are no procedures for reporting information to the public authorities or because their voice is underestimated.

> → *Recommendation No. 3: Continue to reflect on the applicability and effectiveness of texts; assess the knowledge and actual use of standards on the ground; avoid out-of-touch reforms and organise the way field observations are taken into account in legal, judicial or administrative changes.*

Indeed, many cases of biodiversity damage have illustrated a general feeling shared by many stakeholders in the field and characterised by a feeling of solitude, or even loneliness, when it comes to thinking about environmental protection and organising its effectiveness through concrete cases or specific issues. There are many accounts of professionals or experts working or acting 'each in their own corner' and they show the lack of places for consultation and discussion.

> → *Recommendation No. 4: Invest in networks for encounters between the various actors (legal, administrative, associative, scientific, etc.) in order to build a concerted expertise and a more adequate and robust procedural framework.*

In the same vein, strong territorial, social or cultural discontinuities make the application of standards difficult to understand and inconsistent. The resulting heterogeneity of treatment, regulation or prosecution practices is reinforced by the disparity of subjects and competences in the field of environmental protection.

> → *Recommendation No. 5: Invest (or continue to invest) in the specialisation of judiciary and administrative repression in environmental matters; ensure the coherence of biodiversity protection throughout the federal territory (without denying local specificities, particularly in terms of natural typologies); render the evolution of specialised jurisprudence visible (for example, through a database of cases handled and decisions rendered).*

This heterogeneity of practices is visible at the national level - and certainly even more so at the international level. Yet the CRIM-BIODIV research is limited to the Belgian territory and this heterogeneity is also observable within the same regional administration, between different services or even in the practices of the officers of the same service. This can be seen, for example, in the drafting of official reports.

> → *Recommendation No. 6: Invest in the training of administrative staff, taking into account the increasing complexity of the legislation; reduce the heterogeneity of competences in a fair balance between coherence of public action and autonomy of practices.*

More broadly, some of the stakeholders interviewed, those for whom environmental protection is not at the heart of their professional practice, reveal a lack of environmental knowledge or even consideration. This suggests low awareness among administrations of the notion of 'biodiversity', which is an integral part of the notion of 'environment'. Also, an anthropocentric vision of nature protection is spreading: biodiversity is protected for what it brings (in terms of services) to humans. The value of nature in and of itself is little recognised. Sometimes even environmental protection

standards (pollution control, waste management, urban planning standards, etc.) are seen as a nuisance for humans or a hindrance to their development.

> → *Recommendation No. 7: Organise or continue to raise awareness among the staff of public services and administrations about the contemporary challenges of biodiversity (loss).*

Finally, the gaps in terms of accessibility, knowledge and linkage mentioned in the previous points are felt most keenly by non-expert citizens who find themselves at a loss when they observe a biodiversity loss (or even do not notice an obvious loss because they do not identify it as such). However, it appears that many cases of environmental damage are or can be revealed by monitoring and public attention.-

> → *Recommendation No. 8: Invest in the creation, development and communication of citizen support services specialising in environmental and biodiversity issues: toll-free number, community policing, legal aid service, etc.*

Scientific research

In addition to a general recommendation stressing the fact that 'more research is needed', the CRIM-BIODIV project shows the interest of scientific enlightenment of public policies, both in terms of evaluation of practices or scientific accompaniment and in terms of reception of scientific results to feed the reflections of reforms.

> → *Recommendation No. 9: Set up original research partnerships between public authorities, environmental associations and scientific research institutes for better protection of the environment and biodiversity.*

Within scientific research in criminology, attacks on biodiversity (or, more broadly, on the environment) constitute an original subject, which has not been dealt with much in Belgium, and which challenges the ontological, methodological and epistemological constraints of the discipline. The development of other research in this field, or even of permanent research lines within research departments and institutes, should be a priority, both through fundamental research and in terms of support (direct or indirect) for public policies.

> → *Recommendation No. 10: Support and continue efforts to develop a solid environmental criminology (in Belgium, in particular), either through support for cross-disciplinary programmes or by looking more closely at issues that are outsourced to the discipline (industrial pollution, militant protests, management of harmful species, hunting, etc.).*

In terms of research topics within the broad theme of the environment and its damage, the effort initiated in the CRIM-BIODIV project should be continued: deciphering individual perceptions and social representations of biodiversity. In addition, the field could be extended, for example by

examining the effects of the repression/regulation of damage on individual perceptions and citizen behaviour. Other new, complementary and original avenues of research are possible.

> → *Recommendation No.11: Continue research on the perception and sociological value of species and areas. Undertake original research on the social representations of biodiversity and its protection (such as the sociological study of the impact of jurisprudence or repressive practices on mentalities or behaviour).*

The CRIM-BIODIV research has shown that a true interdisciplinary dialogue is possible. The meeting between life sciences and humanities is even necessary when it comes to studying environmental damage (without denying the autonomy of each discipline). In the same vein, the case study methodology has shown its heuristic potential which, behind the twofold difficulty of anonymisation (see below) and the need to go beyond monographic detail, offers strong analytical potential and results that go far beyond the cases studied.

> → *Recommendation No. 12: Establish research consortia on environmental protection that place interdisciplinarity at the heart of the approach. Pursue and enhance case study research (in this case, in environmental issues).*

A strong methodological and ethical issue has emerged from the CRIM-BIODIV research and is linked to both the specificity of the case study method and the involvement (or even commitment) of the researchers in the field. This issue is both practical - the difficulty of anonymisation, given that the choices made in writing this report did not allow certain sensitive but recognisable issues to be addressed - and reflexive - the discomforts and tensions encountered by the researchers are regularly concealed and, in this research, have required the organisation of a specific seminar.

> → *Recommendation No. 13: Organise spaces for discussion and constructive exchanges between researchers (scientific intervision). Work on the modalities for handling sensitive data and the inherent risks (survey relationship, anonymisation, implications of disseminating scientific results, etc.).*

Environmental social sciences - criminology, sociology, anthropology, environmental political science - have been developing massively over the last thirty years. Nevertheless, most studies propose essentially qualitative methodologies. However, quantitative analyses (e.g. Billiet, 2018), even if only descriptive (number of administrative acts relating to environmental permits granted and refused, derogations by district or species, decisions rendered on specific aspects of environmental legislation, etc.), would provide a better overview of citizens.

> → *Recommendation No. 14: Promote statistical studies on biodiversity damage and its treatment.*

Non-profit sector

Interviews in connection with construction of the tool demonstrated the importance of taking into account the singularity of the situations of harm and the associated responses. Its results underline that global tools are useful but may lack nuance and applicability in the field. It is therefore necessary to develop associative mechanisms that aim to question the perceptions of the various publics on specific cases. This approach could complement qualitative data from purely academic research. It would also make it possible to refine the suitability of the global tools used in the field and to offer them adaptability on a case-by-case basis.

> *→ Recommendation No. 15: Develop adaptable associative tools that make it possible to question the perceptions of the public in the context of practical cases.*

In addition to this last recommendation, there is a need for oral exchanges, to create links, to share experiences between actors and to capitalise on this memory. In memory of the oral transmissions through tales, legends and songs in our territories, encouraging the return of places or moments to exchange on these precious heritages thus seems to be a project of the most obvious simplicity. Gathering citizens' expertise through oral exchanges in the aim to question practices, to inspire action, to apprehend a global problem that is sometimes overwhelming through a personal case-by-case approach and thus to tackle the problem in all its diversity.

> *→ Recommendation No. 16: Encourage meetings to capitalise on citizens' expertise by sharing experiences, knowledge and expertise.*

The need for specialised legal support that is accessible to all is also noted. Two main obstacles to accessing the law were described: the semantic barrier (‘I don't understand the language of law’) and the financial barrier (‘I can't afford to pay for the expertise to understand this language’), one reinforcing the other. A question, described as democratic in one of the meetings, therefore arises about access to a legal aid service for citizens and organisations wishing to protect an object of common good, similar to the services offered by the Houses of Justice.

> *→ Recommendation No. 17: Remove obstacles to access to the law by developing a citizen legal aid service for environmental protection*

In exploring the state of the art of the tool, the issue was raised regarding the fragmentation of biodiversity initiatives with respect to the different stakeholders to be reached (general public, educational structures, businesses and politicians). Without questioning the need to maintain a diversity of approaches and actions, a multi-level and multi-actor strategy body could feed a ‘communication strategy’ according to the audiences to be reached. Like the Climate Coalition or the National Office for Biodiversity, an umbrella structure could bring together all the initiatives and work being done to create knowledge and inform the public about the issue. One proposal would be to

develop other axes within the Biodiversity Coalition, which for the moment works mainly at the political level only.

> → *Recommendation No. 18: Set up a national platform to centralise information and action on the issue of biodiversity loss in order to prevent the many initiatives from running out of steam, to make them more visible and to generate a dynamic around biodiversity issues for different audiences*

Many associations work alongside the administrations at different levels, from the most local to the most global. The role of environmental associations in environmental infringement procedures is important: monitoring in the field, naturalistic expertise for citizens, municipal or regional agents, support and mobilisation of citizens, etc. Their knowledge of the field and expertise can therefore be complementary in interactions with the authorities. It would therefore be interesting to build the discussion to accompany these links, and to provide food for thought for the actors to facilitate their exchanges at the local level.

> → *Recommendation No. 19: Consider the pivotal role of environmental associations in their interactions with administrative and legal institutions in the context of administrative and/or judicial proceedings.*

The interviews conducted throughout this project also highlighted the diversity of approaches to actions and associative models in the field, with approaches that are sometimes more local and sometimes more global. Closer to the field, we observe the development and richness of a detailed knowledge of local social and environmental issues, the history of the landscape, political trends, and the very specific realities of a locality, which establishes its own management, anchored in and adapted to the variability of the human and ecological soil of the place. At the most distant level, it is a long-term political strategy approach, inspired by the diverse fabric of these associations among several levels of governance. It is important for this fabric of associations to remain composed of a great diversity of actions, ideas, opinions, etc. In the image of one of the greatest precepts of ecology: diversity ensures the resilience of an environment to the changes it undergoes.

> → *Recommendation No. 20: Encourage the diversity of active structures, including the support of small-scale associations particularly rooted in their locality, on the ground, to ensure the resilience of the local associative milieu and a rich breeding ground for consultative structures*

5. DISSEMINATION AND VALORISATION

On the Internet

Web site of the project: https://incc.fgov.be/crim-biodiv
Web site of the tool: www.crimbiodiv.be/

INCC: https://incc.fgov.be/
Canopea (ex-Inter-Environnement Wallonie): https://www.canopea.be/
LinkedIn INCC: https://www.linkedin.com/company/nicc-incc/mycompany/
LinkedIn Canopea: https://www.linkedin.com/company/22681722/admin/

Oral presentations, posters… and/or organization of workshops, conferences, etc.

- 8 September 2021: GERN International Seminar on Environmental Crime (2nd session), Aix-en-Provence (France)
  Title: 'Atteintes à l'environnement et problèmes de santé publique'
  Co-organisation (A. Jonckheere) and participation (research team members)

- 23 November 2021: Interdisciplinary conferences and debates on spatial planning issues (1nd session), Namur
  Title: Mardi [tabou]: Atteintes à la biodiversité - que fait la justice?
  Organisation (H. Ancion) and oral communications (F. Jonet)

- 10 December 2021, Research seminar organised by Canopea, Namur
  Title: 'Enquête sociologique sur les atteintes à la biodiversité: quel positionnement ontologique pour une fédération environnementale?'
  Organisation and oral communications (J.F. Pütz and F. Jonet)

- 25 January 2022: Research seminar organised by the DO Criminology of NICC, Brussels
  Organisation and oral communications (A. Jonckheere and D. Scheer)
  - Jonckheere 'Les recherches portant sur la criminalité environnementale au sein de la DO Criminologie. Genèse et premiers projets';
  - D. Scheer, 'Qu'est-ce que la Green Criminology?';
  - D. Scheer, 'Le défrichement d'une sablière'.

- 4 February 2022: GERN International Seminar on Environmental Crime (3rd session), NICC, Brussels
  Title: 'Atteintes à la biodiversité. Normativités, Perceptions et répertoires d'action'
  Co-organisation (A. Jonckheere, J.F. Pütz, D. Scheer, F. Jonet) and oral communications (members of the research team and members of the follow-up committee):

- C.H. Born: 'La directive 2004/35/CE sur la responsabilité environnementale: premier cas d'application en Wallonie';
- F. Jonet: 'Controverses autour d'une lasagne verte';
- D. Scheer: 'Défrichement, entre écologie et droit: un dialogue de sourds';
- C. Billiet: 'Flandres: le juge pénal et la sanction réparatrice. Quelques cas'.

For the presentations, see: https://www.gern-cnrs.com/index.php/archives/seminaires/

- 9 June 2022: Seminar, ENS Paris-Saclay, Paris
  Title: 'Des normes d'avant-garde? Temporalités du droit de l'environnement'
  Oral communication: D. Scheer, L. Marsia: 'L'eau ou la pierre: d'un conflit de voisinage à la modification controversée de la réglementation environnementale'

- 21-24 September 2022: European Society of Criminology, Malaga (Spain)
  Poster (see annex 2).

- 2 november 2022, Research seminar organised by Canopea, Namur
  Title: 'Crim Biodiv: quelles articulations entre une enquête sociologique et un outil opérationnel?'
  Organisation and oral communications (A. Danel and F. Jonet)

- 15 December 2022: Citizen's meeting to share experiences on the damage to biodiversity, CANOPEA, Namur
  Title: 'Echanges autour d'un répertoire d'actions pour la biodiversité – L'Epopée d'un espace vert'
  Organisation (A. Danel, F. Jonet, D. Dengis) and oral communication from members of Occupons le Terrain.

- 12 January 2023, Methodological seminar at the DO Criminology of NICC, Brussels
  Title: 'Des études sur l'environnement: matériaux sensibles et malaises de chercheurs·euses'
  Organization (D. Scheer and A. Jonckheere) and communication (D. Scheer) – see annex 3.

- 3 February 2023, final symposium, Brussels
  Title: 'Atteintes à la biodiversité. (In)Actions & Réactions'
  Co-organisation (A. Danel, A. Jonckheere, F. Jonet, S. Meekers, J.F. Pütz, D. Scheer) and oral communications (members of the research team and members of the follow-up committee). See annex 4.

- 28 February 2023, Seminar at the Université Libre de Bruxelles, Brussels
  Title: 'Midi de la recherche. Criminalité environnementale. Histoires de bières et de chasse'
  Oral communication (D. Scheer)

- 22 March 2023: Biodiversity Spring Market 2023, Brussels
  Stand NICC and posters on current research

- 28 March 2023: Research seminar organised by the DO Criminology of NICC, Brussels
  Organisation and oral communications (A. Jonckheere and D. Scheer)

- 27-29 September 2023: Conference Making Visible the Invisibles, ULB, Brussels
  Title: 'Pavement flowers, or how to enhance urban greenery' (submission selected)

Audio-visual supports of the project

Video montage including a presentation of the final symposium as well as sequences with each of the speakers.
Organisation (I. Gillard), footing and assembling (A. Dupont)
Link: https://www.youtube.com/watch?v=qipfaxXoCKc

6. PUBLICATIONS

- Scheer, D. (chapter accepted for publication), 'De la défense d'une zone naturelle à son défrichement. La droit et l'action directe comme arts partagés de la résistance', *in* collectif book, *Résister !*, Bruxelles, Presses universitaires de Bruxelles.

- Scheer, D., Jonckheere, A., Meekers, S., Pütz, J.-F. (article submitted for review), 'La transformation du vivant au prisme d'un dialogue interdisciplinaire', *Trilogiá – Science, technologie et société*, Special issue: Les Sciences et connaissances à l'épreuve de l'Anthropocène: les nouveaux modes d'habiter le terrestre.

- Scheer, D. (proposal for an article accepted by the journal), 'Chasseur et braconnier 'hors-la-loi': gestion différentielle des illégalismes et incitation à jouer avec la loi', *Cultures et Conflits,* Special issue: La société face aux élites délinquantes.

- Scheer, D., Jonet, F., Danel, A., Jonckheere, A., Pütz, J.-F., *Crim-Biodiv. Criminal behavior against biodiversity*, Belspo-INCC, Report, 2023.

7. ACKNOWLEDGEMENTS

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First of all, we would like to thank our colleagues who participated in the design of the research project: Benjamin Mine and Elodie Schils for the NICC and Hélène Ancion and Veronique Hollander for Canopea.

We would also like to thank the evaluators of the project who contributed to the improvement of the project by providing valuable feedback during the evaluation, and BELSPO for the trust placed in our research teams.

A follow-up committee has been set up for the project. Four meetings were organized during the two years of the project and various informal contacts were initiated with its members, while some of them were also able to participate in one or other of the scientific activities organised in the framework of the project. Their interest in the project and the quality of their reflections contributed to its success. Our warmest thanks go to Carole Billiet, Charles-Hubert Born, Dorothée Denayer, Thibaut Goret, Benjamin Mine and Aline Van der Werf. We would also like to thank François Mélard in particular for his valuable methodological advice and for the rich exchanges we had with him throughout this project.

Empirical research cannot take place without the contribution of actors, members of citizens', environmental NGOs, magistrates and judges, public administrations, experts, etc. And those who have given us their expertise in identifying the needs of tools to protect biodiversity. We extend our thanks to each of the people we met for the time you devoted to us and for sharing your knowledge and experiences.

The project has aroused a lot of interest in the student community at universities and colleges. The following students joined the project teams as interns: Amélie Leila Bouita, Louise Marsia, Clara Van Stichel, Elisabetta Tillier and Manon Willot. We are very grateful for their contributions!

We were also able to benefit from the stimulating discussions and reflections that took place during the scientific activities that we organized (seminars, colloquia, etc.) or during meetings with stakeholders. We would particularly like to thank the speakers who participated in the scientific activities organised in the framework of this project. Many thanks to Carole Billiet, Juliette Woitchik, Marc Dufrêne, Vinciane Schockert, Grégory Salle, Charles-Hubert Born, Hilde Eggermont, Alix Hubert and Marie Jadoul. Thank you to all of you!

As a team, we would like to warmly thank our colleagues from Canopea for their indispensable help in different stages of the project. In particular, we would like to thank Anne-Laure Geboes, whose expertise, knowledge of species conservation, and multiple inputs were extremely valuable. Thanks

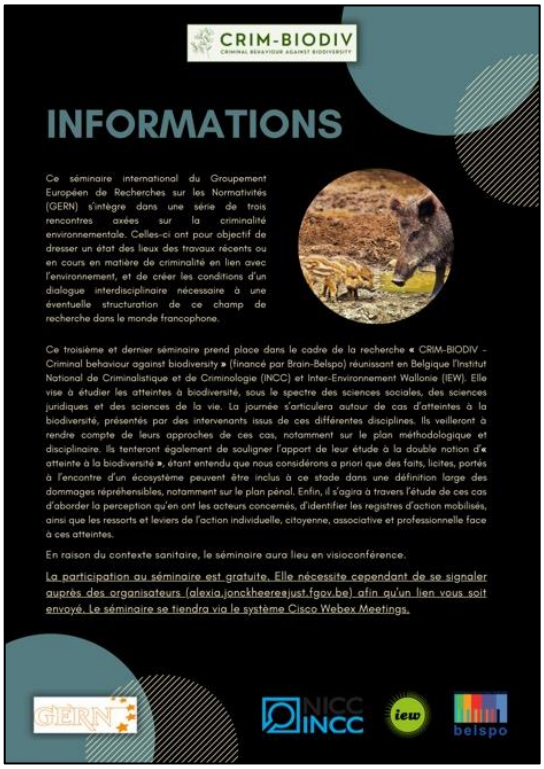
as well for Diane Dengis who regularly provided us with her expertise and her close monitoring of legislative developments and Jessica Delangre, for sharing her projects and expertise on helping field actors on biodiversity protection issues and many others who inspired us through their commitment to make a change in human's cohabitation with The Living. The completion of the project is also due to the director of Canopea, Sylvie Meekers.

Finally, the project would not have had the same impact without our communication team at Canopea. Thanks to Isabelle Gillard for her masterful coordination of all the stages of promotion, to Antoine Dupont for his talent as a videographer, to Chloe Vargoz for all the fine graphical work on our logo and the tool related content as to Xavier Delmelle and Alain Geerts for the short time development of the website hosting the tool and to Sophie Bernard for her communications on the social networks, which offer unparalleled visibility.

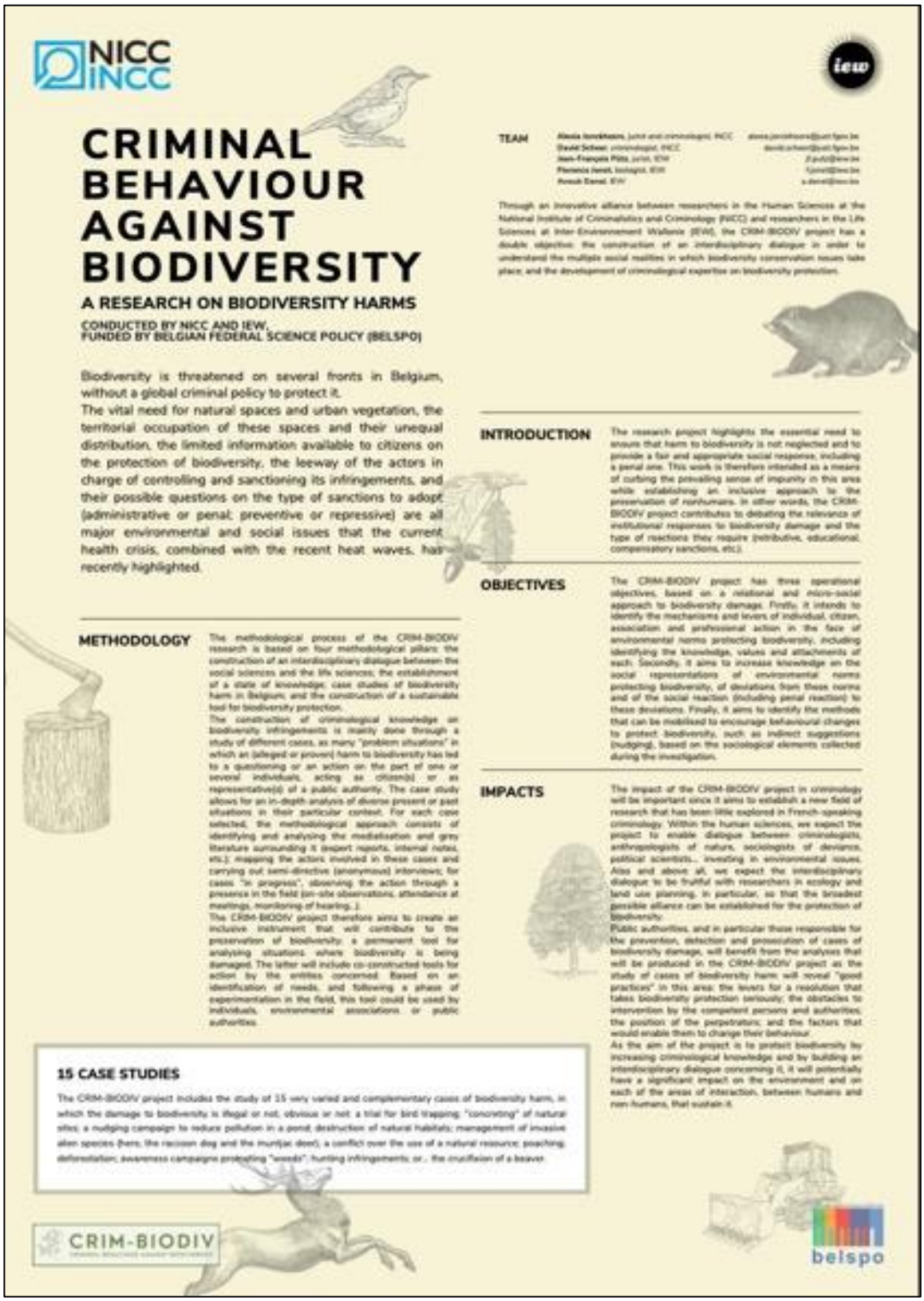
Finally, we would like to thank you, our readers, for your interest in our work. Please do not hesitate to contact us to discuss it.

ANNEXES

Annex 1: GERN International Seminar on Environmental Crime (3rd session), 'Atteintes à la biodiversité. Normativités, Perceptions et répertoires d'action', NICC, Brussels, 4 February 2022.



Annex 2: European Society of Criminology, Malaga (Spain), Poster, 21-24 September 2022.



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CRIMINAL BEHAVIOUR AGAINST BIODIVERSITY

A RESEARCH ON BIODIVERSITY HARMS

CONDUCTED BY NICC AND IEW,
FUNDED BY BELGIAN FEDERAL SCIENCE POLICY (BELSPO)

TEAM

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Through an innovative alliance between researchers in the Human Sciences at the National Institute of Criminalistics and Criminology (NICC) and researchers in the Life Sciences at Inter-Environnement Wallonie (IEW), the CRIM-BIODIV project has a double objective: the construction of an interdisciplinary dialogue in order to understand the multiple social realities in which biodiversity conservation issues take place; and the development of criminological expertise on biodiversity protection.

Biodiversity is threatened on several fronts in Belgium, without a global criminal policy to protect it.
The vital need for natural spaces and urban vegetation, the territorial occupation of these spaces and their unequal distribution, the limited information available to citizens on the protection of biodiversity, the leeway of the actors in charge of controlling and sanctioning its infringements, and their possible questions on the type of sanctions to adopt (administrative or penal; preventive or repressive) are all major environmental and social issues that the current health crisis, combined with the recent heat waves, has recently highlighted.

INTRODUCTION

The research project highlights the essential need to ensure that harm to biodiversity is not neglected and to provide a fair and appropriate social response, including a penal one. This work is therefore intended as a means of curbing the prevailing sense of impunity in this area while establishing an inclusive approach to the preservation of nonhumans. In other words, the CRIM-BIODIV project contributes to debating the relevance of institutional responses to biodiversity damage and the type of reactions they require (retributive, educational, compensatory sanctions, etc.).

OBJECTIVES

The CRIM-BIODIV project has three operational objectives, based on a relational and micro-social approach to biodiversity damage. Firstly, it intends to identify the mechanisms and levers of individual, citizen, association and professional action in the face of environmental norms protecting biodiversity, including identifying the knowledge, values and attachments of each. Secondly, it aims to increase knowledge on the social representations of environmental norms protecting biodiversity, of deviations from these norms and of the social reaction (including penal reaction) to these deviations. Finally, it aims to identify the methods that can be mobilised to encourage behavioural changes to protect biodiversity, such as indirect suggestions (nudging), based on the sociological elements collected during the investigation.

METHODOLOGY

The methodological process of the CRIM-BIODIV research is based on four methodological pillars: the construction of an interdisciplinary dialogue between the social sciences and the life sciences; the establishment of a state of knowledge; case studies of biodiversity harm in Belgium; and the construction of a sustainable tool for biodiversity protection.
The construction of criminological knowledge on biodiversity infringements is mainly done through a study of different cases, as many "problem situations" in which an (alleged or proven) harm to biodiversity has led to a questioning or an action on the part of one or several individuals, acting as citizen(s) or as representative(s) of a public authority. The case study allows for an in-depth analysis of diverse present or past situations in their particular context. For each case selected, the methodological approach consists of identifying and analysing the mediatisation and grey literature surrounding it (expert reports, internal notes, etc.); mapping the actors involved in these cases and carrying out semi-directive (anonymous) interviews; for cases "in progress", observing the action through a presence in the field (on-site observations, attendance at meetings, monitoring of hearing...).
The CRIM-BIODIV project therefore aims to create an inclusive instrument that will contribute to the preservation of biodiversity: a permanent tool for analysing situations where biodiversity is being damaged. The latter will include co-constructed tools for action by the entities concerned. Based on an identification of needs, and following a phase of experimentation in the field, this tool could be used by individuals, environmental associations or public authorities.

IMPACTS

The impact of the CRIM-BIODIV project in criminology will be important since it aims to establish a new field of research that has been little explored in French-speaking criminology. Within the human sciences, we expect the project to enable dialogue between criminologists, anthropologists of nature, sociologists of deviance, political scientists... investing in environmental issues. Also and above all, we expect the interdisciplinary dialogue to be fruitful with researchers in ecology and land use planning. In particular, so that the broadest possible alliance can be established for the protection of biodiversity.
Public authorities, and in particular those responsible for the prevention, detection and prosecution of cases of biodiversity damage, will benefit from the analyses that will be produced in the CRIM-BIODIV project as the study of cases of biodiversity harm will reveal "good practices" in this area: the levers for a resolution that takes biodiversity protection seriously; the obstacles to intervention by the competent persons and authorities; the position of the perpetrators; and the factors that would enable them to change their behaviour.
As the aim of the project is to protect biodiversity by increasing criminological knowledge and by building an interdisciplinary dialogue concerning it, it will potentially have a significant impact on the environment and on each of the areas of interaction, between humans and non-humans, that sustain it.

15 CASE STUDIES

The CRIM-BIODIV project includes the study of 15 very varied and complementary cases of biodiversity harm, in which the damage to biodiversity is illegal or not, obvious or not: a trial for bird trapping; "concreting" of natural sites; a nudging campaign to reduce pollution in a pond; destruction of natural habitats; management of invasive alien species (here, the raccoon dog and the muntjac deer); a conflict over the use of a natural resource; poaching; deforestation; awareness campaigns promoting "weeds"; hunting infringements; or... the crucifixion of a beaver.

CRIM-BIODIV

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Annex 3: Methodological seminar at the DO Criminology of NICC, 'Des études sur l'environnement: matériaux sensibles et malaises de chercheurs·euses', Brussels, 12 January 2023.

Annex 4: Final symposium, 'Atteintes à la biodiversité. (In)Actions & Réactions', Brussels, 3 February 2023.

CRIM-BIODIV
CRIMINAL BEHAVIOUR AGAINST BIODIVERSITY

Slotconferentie van het CRIM-BIODIV project :
BIODIVERSITEITSSCHADE. (IN)ACTIE EN REACTIE
Belgische Senaat, 3 februari 2023

Dit colloquium is het slotevenement van een tweejarig onderzoeksproject gecoördineerd door het Nationaal Instituut voor Criminalistiek en Criminologie (NICC) en uitgevoerd in samenwerking met Canopea (voorheen Inter-Environment Wallonie - IEW), dankzij de financiering van het Federaal Wetenschapsbeleid (BELSPO). Dit onderzoek kreeg de titel « CRIM-BIODIV - Criminal behaviour against biodiversity »

De biodiversiteit wordt in België op verschillende fronten aangevallen. De essentiële behoefte aan natuurlijke ruimten en stadsvegetatie, de territoriale bezetting van deze ruimten en hun ongelijke verdeling, de relatieve informatie van de burgers over de bescherming van de biodiversiteit, de manoeuvreerruimte van de actoren die verantwoordelijk zijn voor de controle en de bestraffing van inbreuken, of de veelheid aan sancties (administratief of strafrechtelijk: preventief of repressief) zijn allemaal belangrijke milieu- en sociale kwesties. Door een nooit geziene alliantie tussen onderzoekers uit de sociale wetenschappen en onderzoekers uit de biowetenschappen, beoogt het CRIM-BIODIV onderzoek inzicht te krijgen in de diverse sociale realiteiten waarin de bescherming van de biodiversiteit zich afspeelt, en criminologische expertise te ontwikkelen inzake de bescherming van de biodiversiteit.

Tijdens de conferentie worden enkele problemen belicht die in het kader van het onderzoek naar (re)acties - of het gebrek aan (re)acties – naar voor zijn gekomen met betrekking tot schade aan de biodiversiteit. Aan de hand van casestudies stellen wij een interdisciplinaire dialoog voor met sprekers uit de sociale wetenschappen en de biowetenschappen om te analyseren wat er gebeurt wanneer de biodiversiteit wordt bedreigd.

Het eerste deel van de conferentie zal ingaan op de 'CO-EXISTENTIE' van biodiversiteit en menselijke activiteiten. Welke biodiversiteit zijn "we" bereid te accepteren en te verdedigen? Wat zijn de verschillende standpunten over milieubescherming? Welke spanningen ontstaan er wanneer de menselijke ontwikkeling de bescherming van de biodiversiteit ter discussie stelt, met name vanuit territoriaal oogpunt? De presentaties concentreren zich op thema's in verband met de transformatie van de biodiversiteit. Deze thema's duiken regelmatig op wanneer het gaat over deze co-existentie en worden gesteld in directe relatie tot milieuschade.

Het tweede deel van de dag zal zich concentreren op de 'COULISSEN VAN DE ACTIE', oftewel de weinig (of niet) zichtbare logica's en mechanismen die ten grondslag liggen aan de toepassing van milieunormen en de doeltreffendheid daarvan. Het doel is de «problemen», de belemmeringen of de voorwaarden voor de(on)doeltreffendheid van milieubeschermingsnormen vast te stellen. De presentaties zullen de rol van het recht bij het omgaan met schade aan de biodiversiteit, de doeltreffendheid ervan met betrekking tot de complexiteit, de ontoegankelijkheid of de kneedbaarheid ervan in vraag stellen.

Deze conferentie richt zich tot een breed publiek: academici, leden van milieuverenigingen, senatoren en vertegenwoordigers, advocaten en magistraten, ambtenaren belast met milieuzaken, politieke medewerkers, studenten en geïnteresseerde burgers,...

PROGRAMMA

9u-9u30 Onthaal (koffie)

9u45-9u50 *Verwelkomingstoespraak.* **Stéphanie d'Hose** (Voorzitter van de Belgische Senaat)

9u50-10u10 *Les atteintes à la biodiversité au prisme d'une recherche interdisciplinaire.* **Dr. Alexia Jonckheere** (NICC) en **Jean-François Pütz** (Canopea), coördinatoren van het projet CRIM-BIODIV

10u10-10u40 *Toestand en toekomst van onze biodiversiteit in België.* **Dr. Hilde Eggermont** (Strategische Coördinator Belgisch Biodiversiteitsplatform, KBIN - BELSPO)

Co-existentie

10u40-11u *La toxicité et ses incertitudes : contamination durable du fleuve Rio Doce (Brésil) par l'industrie minière.* **Juliette Woitchik** (Doctorandus, Université Saint-Louis – Bruxelles)

11u-11u30 Pauze - koffie

11u30-11u50 *Décodage environnemental d'un cas d'atteinte à la biodiversité.* **Sylvie Meekers** (Algemeen Directrice van Canopea)

11u50-12u10 *Muscardin, blaireau, loup, etc... autant d'enjeux de cohabitation variés avec des mammifères protégés.* **Vinciane Schockert** (Attachée van het Département de l'Etude du Milieu Naturel et Agricole - Direction de la Nature et de l'Eau du SPW - zoogdierdeskundige)

12u10-12u40 *Discussie*

12u40-12u45 *L'unité du vivant, par Mary Dambiermont.* **Sophie Wittemans** (Conservator van het artistieke erfgoed van het Palais der Natie)

12u45-14u Lunch & ontdekking van het wandtapijt van de Belgische kunstenares **Mary Dambiermont** *Terwijl de kloof tussen de mens en «de natuur» in de loop van de 20e eeuw steeds groter werd, vierden sommige kunstenaars, vooral vrouwen, de diepe eenheid van levende wezens in hun werk. In de Senaat wordt deze verstrengeling van het menselijke en het niet-menselijke op buitengewone wijze gepresenteerd in een monumentaal werk dat rond 1963 door Mary Dambiermont werd gemaakt.*

Er worden twee rondleidingen aangeboden: om 13.00 en 13.30 uur.

Coulissen van de actie

14u-14u20 *Chasse et braconne. Sanctionner les dommages écologiques ?* **Dr. David Scheer** (NICC)

14u20-14u40 *Ce que nous révèle les multiples étapes et formes de l'érosion de l'efficience de textes légaux en matière de conservation de la nature.* **Marc Dufrêne** (Université de Liège, Gx-ABT, Biodiversité et Paysage)

14u40-15u *Une punition de transaction. Le traitement judiciaire de la marée noire du Cosco Busan (Californie, 2007-2017).* **Dr. Grégory Salle** (CNRS-CLERSE)

15u00-15u30 Discussie

15u30-16u00 *Propos conclusifs. Le murmure de narratives entre la loi et l'imaginaire.* **Prof. dr. Carole M. Billiet** (Head Environmental Law Unit UHasselt)

16u00 Einde van de conferentie

INSCHRIJVING IS VEREIST VÓÓR 31 JANUARI 2023

Na deze termijn kunnen geen inschrijvingen meer in aanmerking worden genomen gezien de veiligheidsvoorschriften van de Senaat. Breng op de dag van de conferentie uw identiteitskaart mee.

NICC INCC CANOPEA belspo

CRIM-BIODIV
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PROGRAMME

9h-9h30 - Accueil (café)

9h45-9h50 - *Verwelkomingstoespraak.* **Stéphanie d'Hose** (Voorzitter van de Belgische Senaat)

9h50-10h10 - *Les atteintes à la biodiversité au prisme d'une recherche interdisciplinaire.* **Dr. Alexia Jonckheere** (INCC) et **Jean-François Pütz** (Canopea), coordinateurs du projet CRIM-BIODIV

10h10-10h40 - *Toestand en toekomst van onze biodiversiteit in België.* **Dr. Hilde Eggermont** (Strategische Coördinator Belgisch Biodiversiteitsplatform, KBIN - BELSPO)

Cohabitation(s)

10h40-11h - *La toxicité et ses incertitudes : contamination durable du fleuve Rio Doce (Brésil) par l'industrie minière.* **Juliette Woitchik** (Doctorante, Université Saint-Louis – Bruxelles)

11h-11h30 - Pause-café

11h30-11h50 - *Décodage environnemental d'un cas d'atteinte à la biodiversité* par **Sylvie Meekers** (Directrice générale de Canopea)

11h50-12h10 - *Muscardin, blaireau, loup, etc... autant d'enjeux de cohabitation variés avec des mammifères protégés.* **Vinciane Schockert** (Attachée qualifiée au Département de l'Etude du Milieu Naturel et Agricole - Direction de la Nature et de l'Eau du SPW - Expert Mammifères)

12h10-12h40 - Discussion

12h40-12h45 - *L'unité du vivant, par Mary Dambiermont.* **Sophie Wittemans** (conservatrice du patrimoine artistique du Palais de la Nation)

12h45-14h - Repas & Découverte guidée de la tapisserie de l'artiste belge **Mary Dambiermont** *Alors que le fossé entre l'être humain et la « nature » tend à se creuser au fil du XXe siècle, certains artistes, en particulier des femmes, célèbrent dans leurs œuvres la profonde unité du vivant. Au Sénat, une œuvre monumentale réalisée vers 1963 par Mary Dambiermont présente de manière extraordinaire cet entrelacs de l'humain et du non-humain.*

Deux moments de découverte guidée vous en sont proposés : à 13h et à 13h30

Coulisses

14h-14h20 - *Chasse et braconne. Sanctionner les dommages écologiques ?* **Dr. David Scheer** (INCC)

14h20-14h40 - *Ce que nous révèlent les multiples étapes et formes de l'érosion de l'efficience de textes légaux en matière de conservation de la nature.* **Marc Dufrêne** (Université de Liège, Gx-ABT, Biodiversité et Paysage)

14h40-15h - *Une punition de transaction. Le traitement judiciaire de la marée noire du Cosco Busan (Californie, 2007-2017).* **Dr. Grégory Salle** (CNRS-CLERSE)

15h00-15h30 - Discussion

15h30-16h00 - *Propos conclusifs. Le murmure de narratives entre la loi et l'imaginaire.* **Prof. dr. Carole M. Billiet** (Head Environmental Law Unit UHasselt)

16h00 - Clôture du colloque

INSCRIPTION GRATUITE MAIS OBLIGATOIRE AVANT LE 31 JANVIER

Plus aucune inscription ne pourra être prise en considération passé ce délai, en raison des consignes de sécurité en vigueur au Sénat. Le jour du colloque, merci de vous munir de votre carte d'identité.

NICC INCC CANOPEA belspo

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