

**What is Wild?**  
**Framing “wild” in the context of wildlife conservation in Canada**

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## **Abstract**

As traditionally wild animal populations are being manipulated by humans, the conceptual understanding of wild is also being brought into question. The lack of understanding and consensus around wildness is hindering conservation efforts across Canada. My research explored the current understanding of wildness in Canadian law and literature. Using this current understanding, I developed a framework around the parameters of wildness by undertaking a jurisdictional scan of relevant Canadian wildlife legislation, a case law review, and document analysis. The framework was further refined using semi-structured interviews with wildlife professionals. The results of this research further identified inconsistencies and gaps within the understanding of wildness in Canada. This study established that there is no universally agreed upon understanding of wildness in Canada, and that not having a wildlife classification hinders conservation outcomes.

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## Abbreviations

COSEWIC: The Committee on the Status of Endangered Wildlife in Canada

CWD: Chronic Wasting Disease

IUCN: International Union for Conservation of Nature

NAM: North American Model of Wildlife Conservation

PTD: Public Trust Doctrine

SARA: Species at Risk Act – Canada

QDM: Quality Deer Management

## Chapter 1: Introduction

### 1.1 Introduction

As traditionally wild animal populations are increasingly manipulated by human presence and actions, the conceptual understanding of “wildness” is being brought into question (COSEWIC, 2010). This terminology has particular relevance in wildlife conservation as legislative bodies attempt to determine species status, protective or otherwise (COSEWIC, 2013). There is a link between a species’ wild status, or lack thereof, and the regulations that are applicable to it (COSEWIC, 2013; COSEWIC, 2018; Schneider, 2019). It is also stated that a lack of statutory consensus around an animal’s wildness can hinder conservation and protective measures with respect to wild animal populations (COSEWIC, 2004). The distinction between wild, domestic, and other animals will continue to blur as conservation challenges increase throughout the Anthropocene (Redford et al., 2012).

The need to isolate parameters that help determine an animal’s wildness is gaining attention with court rulings, the identification of species at risk, animal captivity, disease control, and genetic manipulation (COSEWIC, 2013; Forbes, 2010; Geist et al. 2017; Redford & Adams, 2021). Currently, there is a knowledge gap in the literature related to both a universal definition of wild and a conceptual framework that includes clear, concrete parameters to identify and examine an animal’s wildness. Though attempts are made to establish and define an animal’s wildness in provincial and federal statutes, through case law as determined by Canadian courts, within conservation organizations, and in the peer reviewed literature, the outcome is piecemeal, lacking a holistic and cohesive approach (COSEWIC, 2013; IUCN, 2019; Redford et al., 2011; Shariff, 2015).

The lack of clarity around parameters for establishing “wild” can result in the same species being considered wildlife in one jurisdiction and not wildlife, or domestic livestock, in others (COSEWIC, 2004; Reynolds, 1991). For example, the Plains Bison (*Bison bison bison*) is classified as wildlife in both British Columbia and Saskatchewan, affording the species protections under the respective provincial Wildlife Acts (COSEWIC, 2013). In contrast, the Plains Bison is classified as livestock, not wildlife, in Alberta and Manitoba, and therefore, has limited legal protections in these provinces (COSEWIC, 2004). Additionally, the legal

classification of wildlife, as determined by the animal's wildness, influences regulations around the commercial farming of a species, making such determinations of interest to agriculture and livestock industries (Hudson, 1989).

Determinants of wildness have traditionally been made based on the application of a variety of parameters; for example, the species history in the jurisdiction, whether the population is geographically or genetically distinct from populations managed for purposes other than conservation (such as commercial), whether the population functions naturally, and the extent of human management (COSEWIC, 2013; COSEWIC, 2018; IUCN, 2019; Redford et al., 2011). These considerations are complicated by the multitude of manipulated wildlife populations that are managed for a variety of purposes. For example, captive/cultivated populations may be used for both commercial and conservation purposes, blurring the line between domestic and wild (COSEWIC, 2018). Determining an animal's wildness also requires evaluating populations that are introduced, reintroduced, supplemental or hybrid (COSEWIC, 2018).

Wildlife law is inherently complex in Canada due to the regulatory matrix that surrounds it. Never specifically mentioned in the *Constitution Act* (1867), wildlife and the mandate to manage it, has been attached to ownership of the land and managed as a natural resource. This interpretation leaves constitutional authority over wildlife to the provinces of Canada (Kennedy and Donihee, 2006). However, this issue is complicated by the existence of wildlife on federal land such as National Parks, which puts it within the jurisdiction of the federal government, in addition to fish and migratory animals, such as birds that cross both provincial and federal borders (Forbes, 2010). Species at risk legislation, which exists at both provincial and federal levels of governance in Canada, must also be taken under consideration (Beazley & Boardman, 2001). The constitutionally recognized rights of First Nations, Inuit, and Metis people regarding wildlife also contribute to the legislative framework around wildlife in Canada. Furthermore, international treaties and the existence of commercially farmed wildlife, add additional layers of legislation and complexity into wildlife law and policy (Beazley & Boardman, 2001).

Wildlife, regardless of what jurisdiction they fall under in Canada, do not abide by political boundaries. Migratory birds for example, can move between provinces, countries, and



continents, paying no respect to the conceptual boundaries which humans have identified (Ramenofsky & Wingfield, 2007; Rosenberg et al., 2019). Similarly, other terrestrial wildlife species also move between private and public land, further complicating management, conservation, and policy (Schneider, 2019).

Facilitating early discussions about wildness and wildlife is critical to determining the future of wildlife, as legal classifications are linked to legislative protections and therefore, conservation measures (COSEWIC, 2010; Hudson, 1989). Providing legal protections for wildlife is essential during what scientists are referring to as the Anthropocene, otherwise known as the Earth's 6<sup>th</sup> mass extinction (McCallum, 2015; Schneider, 2019). This is characterized by colossal population declines globally over the last 100 years (Schneider, 2019). As stated by Beazley and Boardman (2001, p.2), "The biodiversity crisis is well underway. The causes are complex, and the results are predicted to be devastating."

Species declines over the last 100 years have been so steep that they exist outside of the normal context of general human observation (Beazley and Boardman, 2001; Schneider, 2019). Concern extends beyond species at risk, as these vulnerable species represent only a portion of those on the decline. Among vertebrate species, which are the most well-studied group of organisms in Canada, 32% have experienced significant range reductions (Ceballos et al., 2017; Schneider, 2019). Despite receiving the majority of conservation attention, vertebrates only comprise 3% of all wildlife species present in Canada, creating a wide gulf between the remaining 97% in terms of research knowledge, funds, and conservation effort (Schneider, 2019). Wildlife on a grand scale, regardless of status, has experienced significant population declines and habitat limitations, which can overwhelmingly be attributed to anthropogenic sources (Schneider, 2019). Building a more comprehensive understanding of how the wildness of animals is constructed and understood may aid in addressing such wicked conservation concerns.

## 1.2 Purpose and Objectives

The purpose of my research was to create a framework that harmonizes the existing parameters of "wild" for use in developing policies that are aimed at engendering more effective wildlife conservation in Canada.

The underlying objectives of my study were:

- a) to identify which parameters are commonly used to determine an animal's wildness;
- b) to explore federal and provincial regulatory definitions of wildlife;
- c) to understand the implications of wildlife privatization for commercial purposes on the definition of "wild;"
- d) to use the findings of objectives a, b and c to establish key parameters of wild in a framework that can be practically applied to wildlife conservation in Canada; and
- e) to recommend any further action regarding its implementation for determining "wild" in Canada.

### 1.3 Research Methods

My research design used a qualitative approach, broken down into two phases. The primary phase involved conducting a jurisdictional scan of wildlife and game farming acts, a case law review, and document review. Additionally, while a complete review of the legal status of wildness outside of Canada is outside the scope of this research, I did follow-up on the literature that clearly establishes parameters used to determine wild, such as with the International Union for the Conservation of Nature (IUCN). Data from these sources were gathered to develop an initial framework to determine wildness.

In the second phase of research, I sought input and review of the framework I developed by wildlife professionals, academics, government agents and others, using semi-structured interviews. These interviews helped to ground truth, reveal practical understanding, and isolate specific issues with the framework and any needed improvements to it. Data from the interviews were used to refine the framework.

It should be noted here that First Nations Rights regarding wildlife, arising pursuant to Section 35 of the Constitution, are largely outside of the scope of this research. It is acknowledged that First Nations, Inuit, and Metis have Constitutionally recognised rights and a distinct relationship with wildlife. Although it is beyond the scope of this research to use a rights-based approach, it is my hope that this study works to contribute to a body of knowledge

used to bolster conservation decisions for the betterment of wildlife and all those whom have a relationship with it. Examining wildness from a rights based approach is further discussed in section 6.6: Future Research.

#### 1.4 Contributions to Knowledge

This research contributes to the understanding of the parameters used to determine the wild status of a population and aids in distinguishing the difference between domesticated, wild, and other classifications in Canada. In addition, this research considers the role of private interests in determining an animal's wild status by exploring wildlife privatization through game farming (Geist, 1995).

With respect to conservation practices, this research could have various applications as it provides context for helping to determine a population's wild status for protective measures, as well as other conservation actions. The existence of a framework adds validity to claims of wildness in the face of opposition and may have an impact in court proceedings. The framework may also add clarity to distinguishing features between wild and domesticated populations, and potentially assist in addressing ongoing strategic blurring at the expense of achieving conservation goals. I also provide a list of existing considerations for determining a population's status in Canada.

In addition, my research reflects Canadian court decisions, which may aid conservation organizations and regulatory bodies in clarifying the legal determining factors of an animal's wildness. Ultimately, my research aims to address key knowledge gaps surrounding the definition of wild and be of practical use for conservation purposes, while creating a baseline for future research.

#### 1.5 Organization

This thesis is organized into six chapters. Following this introductory chapter, Chapter Two provides a review and synthesis of the existing literature regarding wildlife and definitions of wild. This literature review helps initiate the investigation of existing parameters used by regulatory bodies to determine a species' wild status. This research is supported with peer

reviewed articles on defining wildlife and parameters used to determine wild status. Chapter Three outlines the specific data collection and analysis methods used in this research. The first phase of results is presented in Chapter Four, providing a review of Canadian case law regarding wildlife definitions and parameters around wild. The investigated application of jurisdictional definitions and parameters are also revealed in this section. The second stage of results, derived from interviews, is presented in Chapter Five. Finally, a summary of the research and final discussions are provided as a conclusion in Chapter Six.

## Chapter 2: The Context for Determining What is Wild

### 2.1 Introduction

The first section of this chapter introduces ideas around wildlife conservation and establishes the importance of understanding wildness to conservation measures. The second section of this chapter presents the parameters that have been developed around wildness, as established in peer reviewed literature, by conservation organizations, in Canadian law, and through international standards. In the third section I focus on Canadian law and policy as it relates to wildlife conservation, specifically deconstructing legislative jurisdiction as determined by constitutional authorities. This section highlights the regulatory matrix that surrounds wildlife. The chapter concludes with the development of a conceptual framework established to capture the parameters around wildness.

### 2.2 Wildlife Conservation

In this section, I establish the lens of conservation that I use throughout this thesis. I then outline the ways in which understanding wildness aids in addressing conservation concerns; namely, species at risk, captive animals, and disease. In this section I discuss the undertone of wildlife privatization throughout conservation concerns potentially addressed by this research.

#### 2.2.1 Defining Conservation

Redford et al. (2011), defines conservation as the natural result of realized implications of human effects on the planet. Conservation is, “human action saving nature from other human action,” (Redford & Adams, 2021, p.3). In terms of the wildlife management perspective on conservation, successful conservation is often determined based on harvestable population terms. Conservation biology, on the other hand, considers successful conservation to be the prevention of extinction (Redford et al., 2011).

The conservation biology approach, focusing on species extinction avoidance, has become the accepted approach to conservation (Redford et al., 2011). Codified in both policy and science, this approach has moved conservation in the direction of identifying at-risk and rare populations of animals (Redford et al., 2011). In practice, this materializes as a focus on species at risk legislation, aimed to reduce the chance of population extinctions (Redford et al., 2011;

Shea et al., 1998). However, there has been desire to re-evaluate the definition of successful conservation beyond the widely accepted metric of harvestable populations and extinction avoidance, towards more proactive conservation (e.g., Dreschsler et al., 2011; Martin et al.; Redford et al., 2011; Walls, 2018).

Due to the criticisms of focusing exclusively on extinction prevention, Redford et al. (2011, p.40) have redefined successful conservation as “maintaining multiple populations across the range of the species in representative ecological settings, with replicate populations in each setting.” This understanding of conservation is helpful in addressing problems such as the loss of global biomass, considered to be so momentous that it is beyond the scope of human observation (Rosenberg et al., 2019). A shocking 2019 study documented an avifauna (bird) abundance decline in North America of nearly three billion breeding adults (Rosenberg et al., 2019). A significant portion of these losses were observed in common birds such as sparrows, warblers, blackbirds, and finches (Rosenberg et al., 2019). Rosenberg’s study illustrates that the conservation concern extends beyond species at risk to more common species that have also experienced considerable population declines.

It is this broader understanding of successful conservation that is used for the purposes of this research. With this broader definition in mind, the following areas have been identified in terms of demonstrating existence of blurred lines between domestic and wild as well as the potential linkages (positive or negative) between wildness and conservation goals : species at risk; captive animals and disease; and privatization.

### 2.2.3 Species at Risk

An understanding of wildness is important when making the determination of a species at risk. This is particularly true when considering a species that exists both in the wild and in captivity, for the purpose of making accurate population estimates. The Canadian Species at Risk Act (2002) (SARA) is not supported by policy regarding determining a wild animal from other designations, other than stating that the included population must be “wild by nature.” Neither SARA, nor the associated guidance, defines the term “wild by nature.” Without this definition, in addition to there being no universally agreed upon understanding of wildness in Canada, the

identification animals included in a population estimate may be manipulated for economic initiatives, instead of focusing solely on conservation objectives. A clear example of this was used when attempting to list Plains Bison in Canada.

Plains Bison is a heritage species in Canada and one that had a momentous impact on the development of the nation (COSEWIC, 2013). Despite their considerable sacrifice to the development of North America, they continue to face conservation challenges in individual provinces and Canada as a whole, with the vast majority of existing bison being held privately in commercial ranching operations (COSEWIC, 2013; SARA, 2005). These conservation challenges stem from political interference in the classification process under SARA, with the lack of a universal classification of wildness initially being used as a scapegoat (COSEWIC, 2013; Nishi, 2017).

The classification of bison in Canada has been a source of controversy (COSEWIC, 2013; Nishi, 2017). Currently, Saskatchewan and British Columbia list Plains Bison as wildlife in their jurisdiction, while Manitoba and Alberta have Plains Bison classified as livestock (COSEWIC, 2013). In addition, the species does not hold status under SARA or the U.S. Endangered Species Act (1973), despite continuous efforts to list the species in both jurisdictions. As Aune and Wallen., (2010. p.75) state, “This confusion in the legal status of bison is probably the single most important obstacle impeding ecological restoration and hindering a nationwide conservation strategy.”

Alberta serves a well-documented example of the implication of legal status. Bison in Alberta are generally considered livestock under the province’s Animal Health Act (2007), which only affords limited legislative protections as a species (Nichols, 2015; Nishi, 2017). In practice this means that a free roaming bison can be harvested without bag limits, seasonal considerations or other hunting restrictions, often justified as passive disease control (Nichols, 2015; Nishi, 2017).

The \$6.4 million dollar reintroduction of bison into Banff National Park in Alberta serves as an example of legal status discrepancies and potential outcomes. Predictably, just one week

after the bison were released into Banff National Park, two bulls travelled outside of the park boundaries and away from federal legislative protection, into what is effectively open season on their species in Alberta (Derworiz, 2018; Rieger, 2018). Shortly after, the province of Alberta through Ministerial Order, created a protected area around Banff where the bison would be considered wildlife and therefore not legal to hunt (Derworiz, 2018). Presumably, if bison leave this protected area, they will lose their classification as wildlife, and once again be available for hunting. This scenario reinvigorated calls from First Nations communities to classify bison as wildlife throughout the province (Derworiz, 2016; Derworiz, 2018).

Habitat restoration and protection is also influenced by species at risk listing and lack of a wildlife classification. Plains Bison primary native habitat on the Canadian prairies has been drastically altered by agriculture and infrastructure development (COSEWIC, 2013; Forrest et al., 2004). Habitat conversion and adverse land use management remain a significant threat and limiting factor to wild Plains Bison. The restoration of native habitat is impeded by significant institutional, cultural, and historical barriers (COSEWIC, 2013). Species at risk listing would aid in addressing conservation challenges regarding habitat restoration and protection.

The classification dilemma around Plains Bison came to a head during the federal species at risk listing process. A status assessment completed by COSEWIC designated the species as threatened and made a recommendation to the Minister to classify it as such under SARA (COSEWIC, 2013; COSEWIC, 2004). A species classified under SARA is afforded federal protections and recovery measures that are otherwise not granted (SARA, 2005). Important in the case of Plains Bison, a classification under SARA may prompt a recovery strategy or action plan, identifying and protecting critical habitat in addition to general legislative protections, such as hunting controls.

In the Order Giving Notice of Decision not to add Certain Species to the List of Endangered Species from 2005 (during an earlier attempt to list the species), arguments *against* listing Plains Bison were made because: (1) genetically, wild and ranched bison cannot be differentiated; and (2) listing the remaining wild bison under SARA may negatively impact the bison ranching industry (COSEWIC, 2013; SARA, 2005). Note that there are approximately



600,000 to 750,000 bison in North America, with roughly 95% in commercial ranching operations (SARA, 2005). Ultimately, after re-assessment, the COSEWIC decision from 2015 is still pending; this is an ode to the implications of influence of wildlife privatization. The implications of not being listed materialize as the few remaining wild Plains Bison populations are not receiving federal legislative protection or organized recovery initiatives.

The argument used by the commercial bison industry of being unable to differentiate between ranched and wild bison may have lost merit if clear categories of wildness had been established. COSEWIC has since established guidelines on manipulated species (2018), although the Plains Bison decision from 2015 remains pending. In a world of increasing animal manipulation and the steady intrusion of private ownership over wildlife, cases such as the Plains Bison may become more common. This may be the clearest, most linear cause and effect outcome from a lack of consensus on wildness hindering conservation efforts.

#### 2.2.4 Captive Animals and Disease Control

Game farming (also called game ranching, wildlife ranching and alternative agriculture) is a practice of commercial animal manipulation that has been instrumental in the further blurring of lines between domestic and wild animals. This commercial industry farms exotic and native wildlife within managed properties for profit (Demarais, et al., 2002). Game farms vary in size, management product, and production animals, but will include fencing structures intended to hold animals captive (Demarais, et al., 2002). Intensive population management and animal husbandry typically occurs to create the highest value animal for the given product (Demarais, et al., 2002).

Game farming and the commercial use of captive animals directly challenges the line of wildness by attempting to establish private property rights in wildlife (Dowel, 2019; Jefferson, 2020). A universal understanding of wildness may add clarity and aid in conservation measures to address these concerns.

Game farming developed and greatly expanded in Canada during the wildlife management era (1970's-1990's), as a means to diversify agriculture (Demarais, et al., 2002;

Donihee 2000). The four primary products produced in the game farming industry are shooter bulls for captive hunting operations, meat, antler velvet, and breeding stock (Demarais et al 2002). The containment of high densities of animals in game farming facilities has created an outpouring of concern around both biological and social problems (Demarais et al., 2002). The challenges associated with game farming are vast and multidisciplinary, although it is my intent in this section only to review the literature as it applies to understanding parameters around wildness and defining “wild.”

“One of the recurring philosophical and legal questions concerning ungulates behind fences involves “wildness” versus domesticity,” (Demarais et al., 2002, p.21) and in a world of livestock versus wildlife, it was predicted by Geist (1995) that wildlife would not come out on top. The game farming industry directly creates and contributes to the blurring of lines between wild and domestic animals. It does this by containing traditionally wild animals behind fences, and farming them for private, commercial gain (Demarais, et al., 2002). The act of containing a traditionally wild animal such as elk, whitetail deer, mule deer or American bison, directly forces the question of wildness. Game farms have pushed this question of wildness into the courts in both the USA and Canada.

Understanding the parameters around what makes a captive animal wild for the purpose of wildlife disease control has sparked multimillion dollar lawsuits in the United States (US) and Canada (Alberta Wilderness Association; Jefferson, 2020; Nichols, 2015). In the US, private animal owners in the business of game farming have sued the government agency responsible for regulating the industry in order to establish private property rights for the farmed animals (Dowell, 2019; Jefferson, 2020). Establishing private property rights is an attempt at avoiding mandatory testing and movement limitations on farmed animals, which were established as a response to the spread of wildlife disease, specifically chronic wasting disease (CWD) (Dowell, 2019). These cases left it to the courts to determine if the farmed animals were classified as wildlife, domestic livestock, both, or other. Depending on the classification found by the courts, the animals would be subjected to different rules and regulations regarding wildlife disease testing, transport and containment (Dowell, 2019).

Another conservation concern regarding captive animals and disease control centres around property rights and the corresponding regulatory body (Demarais et al., 2001; Jefferson, 2020). Species that are free ranging, wild, and native are typically legally considered property of the provincial government, as per the Constitution Act (1867), and reaffirmed in most provincial Wildlife Acts (Kennedy & Donihee, 2006). This vests management responsibilities in the provincial Wildlife Department (Demarais et al., 2001). Alternatively, if an animal is determined to be domestic instead of wild, ownership typically falls to private individuals, while regulatory responsibility shifts to the provincial Department of Agriculture (Demarais et al., 2001). This question of legal ownership of wildlife, in addition to who has the mandate to create wildlife policy and law, has significant implications on wildlife management and conservation (Forbes, 2010).

Alberta is one of the only jurisdictions in North America where game farmers retain property rights for escaped game farm animals (Henton & Derworiz, 2015). In other jurisdictions, the escaped animal would be located and dispatched by a provincial officer, but in Alberta, this is left to individual farmers (Henton & Derworiz, 2015). This prompts significant conservation concerns about wild populations in relation to disease management and genetic contamination (Henton & Derworiz, 2015).

Game farming also raises the question of wildness through the introduction of invasive species, forcing an examination of whether these species are considered wildlife in the invaded jurisdiction. For example, wild pigs were introduced to the Canadian prairies through game farming when pigs escaped captivity and became endemic in the wild (Brooks & van Beest, 2014). As a result, there is now extensive concern around disease transmission and the habitat impact of wild pigs (Brooks & van Beest, 2014). Overall, invasive species is a major biological concern with game farming (Demarais, et al., 2002).

The hybridization of escaped game farmed animals with wild animals of the same species poses conservation challenges and pushes the question of wildness (COSEWIC, 2004). For example, if a domesticated (non-wild) animal escapes from a game farm and hybridizes with a wild animal, is the offspring considered to be wild, despite genetic contamination? In fact, game

ranching and the possibility of hybridization, is noted as a direct threat to Plains Bison (COSEWIC, 2004).

With wildlife conservation concerns increasing, the distinction between wild and captive populations will continue to blur (Redford et al., 2012). Conservation crises, whether they are recognized as such, have forced conservation organizations to venture into population management (Redford et al., 2012). For example, many modern zoos are engaged in field conservation, often in the form of supplemental breeding programs, while still maintaining captive populations for public education (Redford et al., 2012). Yet, sustainable wildlife management in isolation from wild populations taking place in zoos, has only been successful for a select number of populations (Lacy 2012; Redford et al., 2012). Lacy (2012) notes that the most successful captive breeding programs typically still do not resemble healthy, genetically diverse representatives of wild populations. This is attributed to small captive breeding populations, lack of cooperation in breeding programs, and unsuccessful breeding attempts (Lacy, 2012). The lack of genetic success in captive breeding programs has drawn an argument that these programs should be linked to both wild and semi-wild populations through selective animal and animal DNA exchange (Redford et al., 2012; Lacy, 2012). This serves as another example of further human manipulation of wildlife distribution and genetic makeup which blurs the line between wild and domestic.

To summarize, game farming pushes the question of wildness in several ways: directly, through the existence of traditionally wild animals held behind fences for commercial gain, and indirectly through the introduction of invasive species, the spread of wildlife disease, and genetic contamination.

### 2.2.5 Privatization

Wildlife privatization is a momentous issue with a wicked history dating back to ancient Roman times (Batcheller et al., 2010). The transition of wildlife from public ownership to private control (privatization) continuously underpins conservation concerns. In particular, free ranging species at risk being conflated with captive animals of the same species, wildlife disease,

invasive species introduction, game farming, and biological engineering concerns are all directly related to the private ownership of animals.

Fundamental to the discussion around wildlife privatization in North America is the inherent framework of free ranging wild animals belonging to the public, held in trust by the jurisdictional government, as opposed to private interests or land-owners. This idea is referred to as the Public Trust Doctrine (PTD) and is rooted in ancient Roman civil law (Batcheller et al., 2010). The PTD declares natural resources of universal importance to which the public should have access (Batcheller et al., 2010). This is accomplished by establishing the jurisdictional government as a trustee for the public, over fish, wildlife, water, and other resources, often codified in statute law or jurisdictional case law (Batcheller et al., 2010).

The dominance of neoliberal economic ideology in recent decades has shifted the discourse away from wildlife being held by the government as a public resource, towards private ownership; commodities for market place (Benson, 1992; Freese & Trauger, 2000; Peterson et al., 2010; Peterson et al., 2016). This privatization materializes as claiming private property rights over wildlife, the commercial wildlife farming industry, and limitations to wildlife access on private land, all which have been recognized as a threat to the PTD (Batcheller et al., 2010; Organ & Batcheller, 2009; Organ & Mahoney, 2007).

In addition, the PTD is not universally accepted, with other models existing globally, rooted in private ownership of wildlife, typically for personal or corporate gain (Batcheller et al., 2010). For example, in early 2021, the country of Nepal took a drastic turn in their conservation model, moving from a strict ban on buying and selling wild animals to wildlife commercialization (Bhushal, 2021). This transition effectively opened a market for wild animals and their body parts, raising concerns over the future of wildlife in the country (Bhushal, 2021). Nepal is one of many counties, including Canada, that grants or allows forms of private property rights in wildlife.

The transition of wildlife from de facto public ownership to private control directly threatens trust-based conservation or management models including The North American Model

of Wildlife Conservation (NAM) (Geist, 1988). Although it is not without criticism, including that it exemplifies a colonial resource-based view of wildlife, NAM is nonetheless unique globally as it utilizes the PTD to give ownership of wildlife resources to the public through government ownership (Demarais et al., 2001; Geist, 1988).

In the move to privatize wildlife for commercial gain, the efforts to list traditionally wild species as “domestic,” or “non-wildlife,” is perceived as another shot in an ongoing war on public wildlife (Geist, 1990). This war on wildlife materializes as direct privatization of public animals, manipulations of public favour, and perhaps even revisions on the very definition of what makes an animal wild or domestic (Geist, 1990). The late Valerius Geist cautioned against allowing wildlife to slip out of public possession and into the hands of private ownership, a process often masked as “alternative agriculture” and used for commercial gain (Geist, 1990).

#### 2.2.5.1 Privatization Through Synthetic Biology

Synthetic biology is an emerging field of genetic manipulation defined as “design and construction of novel artificial biological pathways, organisms and devices or the redesign of existing natural biological systems,” (Redford & Adams, 2021; The Royal Society, 2020). This form of genetic manipulation is increasingly mainstream in the fields of agriculture, healthcare, and veterinary health, and is beginning to expand into the arena of wildlife (Adams & Redford, 2021).

Conservation scientists have not been consulted or involved in the current instances in which genetically manipulated animals have been released (Adam & Redford, 2021). This mirrors early conservation warnings that “science is a minor player in wildlife management compared to economic, political, social, and technological factors,” (Geist, 1990, p.247). Kent Redford and William Adams, two leading voices on the genetic manipulation of wild animals, suggest urgency in the need for conservation scientists to develop a capacity to understand the potential impacts synthetic biology in the arena of wildlife (2021).

The first open field release of a genetically altered animal was the diamond back moth, an agricultural pest now engineered to be unable to reproduce, in 2017 (Le Page, 2017; Redford &

Adams, 2017). Oxitec, the private biotechnology company responsible for developing the genetically manipulated moth, is now seeking approvals to sell it to farmers as a form of agricultural pest control (Le Page, 2017). Oxitec has also expressed that it will continue to pursue the genetic manipulation and sale of pest control species (Le Page, 2017). This release directly forces the question of whether a privately owned, genetically manipulated moth is considered wild or not.

Wildlife genetic manipulation has been documented in a small number of cases, with several more examples near fruition (Adams & Redford, 2021). Specifically, genetic manipulation is being considered for the direct conservation purposes of controlling island invasive species and de-extinction efforts (Adams & Redford 2021; GBIRD, 2019; Novak, 2018). Genetically altered fish have been in extensive production for several years and their efficiency in escaping the commercial fish pens and interacting with wild fish species has posed significant conservation concerns (Adams & Redford, 2021; Karlsson et al., 2016).

The need for conservation scientists to grapple with genetic modification of wild species is particularly relevant in the face of considerable economic opportunity, which is already being realized by the biotech industry (Redford & Adams, 2021). Privatization of wild genomes will create a scenario of winners and losers, with potential implications for wild animals, ecosystems, and biodiversity (Redford & Adams, 2021). The commercial value of wild genomes is dependent on if the law considers it a public resource, or if it can be patented, privatized, and sold for commercial gain (Redford & Adams, 2021).

The genetic manipulation, privatization, and the sale of wildlife is upheld by early case law in North America. USA case law, *Diamond v Chakrabarty* (1980), determined that a patent can be applied to both living and inanimate subjects (Bean & Rowland, 1997). The court determined that patentability is decided by whether the subject is present in nature or is “the result of human ingenuity and research,” (Bean & Rowland, 1997; *Diamond v Chakrabarty*, 1980).

Canadian case law, specifically, *Harvard College v Canada* (2002), commonly referred to as the “Harvard Mouse Case,” takes a different stance than the USA court. *Harvard College v Canada* (2002), determined that higher life forms such as genetically manipulated mice, do not fall under the definition of “invention” in the Patent Act (1985), and are therefore not eligible to be patented (MacCallum & DeMarco, 2003). This makes Canada an outlier among the United States, Japan, and many European Union countries, who do permit the patenting of higher life forms (MacCallum & DeMarco, 2003). Notably, in the Canadian case *Monsanto Canada Inc. v Schmeiser* (2004) it was determined that a particular gene within a larger life form may be patented, potentially creating somewhat of a legal gray area when it comes to wildlife. Although there does not appear to be any recent changes in Canadian patent law, this is an important area to monitor and has potential for future research.

The trend of global case law upholding these steps towards wildlife privatization, emphasizes the need to create a comprehensive picture of wildness. While it could be argued that human considerations should not be included in a discussion of wildness, it would be short sighted and naïve not to. Anthropogenic considerations must be included in a discussion around wildness in an age of synthetic biology, intense wildlife management, and wildlife privatization. Genetic manipulation of wild species may become another chapter in the story of wildlife privatization. The creation and release of genetically modified higher life forms, along with intellectual property protections, directly pushes the question of wildness, while also having potentially significant implications on conservation, for better or worse.

The conservation concerns of species at risk, captive animals and disease control may all have an element privatization. The transition of wildlife from a public good to a commodity used for private gain directly challenges the traditional understanding of wildness, and affects the areas of conservation listed above. It is essential to begin creating the capacity to understand wildness now, and not twenty years in the future when, for example, genetically modified black footed ferrets are being sold back to the government as a reintroduction strategy.



### 2.2.6 Summary

The current lack of consensus, blurred lines and piecemeal approach to understanding what determines a wild animal from a domestic animal is hindering conservation efforts. In turn, this creates the conditions for political hubris in favour of commercial interests over conservation measures. This is demonstrated by the still pending decision on listing Plains Bison, allowing game farming to spread CWD across Canada, and the impending sales of genetically modified species that have been patented and marketed for commercial gain.

A universal understanding of wildness will arguably aid in alleviating classification questions such as those related to species at risk, and assist in delivering guidance on which jurisdictional department should have authority to provide the best conservation outcomes. A more comprehensive understanding around wildness will also lay the foundation for answering upcoming conservation questions around synthetic biology and genetic engineering. Eliminating the confusion around classification will reduce the space for non-transparent commercial leveraging, political interference and provide context and clarification for those pursuing wildlife conservation.

## 2.3 Defining Wildlife

In the following sections I review the history of the perception of wildlife throughout Canadian history, followed by identifying parameters used to determine wildness, in peer reviewed literature, within wildlife organizations, and in the Canadian courts. This is then followed with a chapter summary and a first attempt at a framework for determining wildness.

### 2.3.1 - The History of Wild

Understanding the parameters used to define wildlife is challenging because in many instances these parameters simply do not exist. This is demonstrated below, where definitions for wildlife are vague and largely exclude any parameters around what makes an animal wild, domestic, or otherwise. This gap exists in literature, textbooks, within wildlife organizations, in Canadian courts and in the legislation. There is no established template or framework to guide the determination of an animal's wildness.

The term “wildlife” does not have a fixed meaning throughout history (Bean & Rowland, 1997; Donihee, 2000). Instead, the definition of wildlife has evolved through time as a feature of changing wildlife management eras, societal values, environmental considerations, and case law (Bean & Rowland, 1997; Donihee, 2000; Redford & Adams, 2021). In Canada, the legislative definition and understanding of wildlife has changed as a result of advancing wildlife management eras (Donihee, 2000). The progression of wildlife management eras is characterized by an initial legislative scope focused nearly exclusively on game species, which has since evolved to consider a greater number of species (Donihee, 2000). Donihee (2000) labels these chronological wildlife management eras throughout Canada’s history as the Game Management Era, the Wildlife Management Era, and the current Sustainable Wildlife Management Era. Each province, territory, and the federal government have progressed through the eras at their own individual pace, established through legislative change in their jurisdiction.

The Game Management Era is considered the longest of the three, beginning before Confederation and lasting into the 1960’s and beyond in some jurisdictions (Donihee, 2000). Rooted in hunting controls, wildlife management legislation of the time focused exclusively on game animals, largely intended to protect the mammals and birds that humans relied on (Donihee, 2000; Leopold, 1933). In this era, wildlife was considered by the legislation to be strictly game animals, and in some instances, animals that were of direct benefit to humans, such as insectivorous birds (Donihee, 2000).

Most jurisdictions in Canada progressed into the next era, the Wildlife Management Era, around the 1960’s (Donihee, 2000). This era was characterized by emergent non-consumptive uses for wildlife, the expansion of hunting controls, habitat protections and artificial game replenishment through human intervention (Donihee, 2000). These features resulted in legislative changes that saw an expansion of the definition of wildlife beyond the traditional game animals, and into non-game animals (Donihee, 2000).

The Wildlife Management Era is of specific interest to my research because of the artificial replenishment of animals through the emergence of game farming and other captive populations that occurred during this period. This time frame is also considered to be the

beginning of modern species conservation, rooted in conservation biology (Redford et al., 2011). This discipline is built on the foundation of genetics, captive breeding and captive populations (Meine et al. 2006; Redford et al., 2011). These captive populations, in the lens of conservation biology, served as insurance populations in the event of wild populations going extinct (Rabb & Saunders 2005). The act of taking traditionally wild animals and harbouring them in captivity directly challenged the question of wildness, and complicates the definition of wildlife, as I have established above.

The current wildlife management era, beginning for most jurisdictions around the 1980's, is the Sustainable Wildlife Management Era (Donihee, 2000). This era consists of legislative changes encouraged by actions external to the legislative jurisdiction. Specifically, the influence of international commitments made by the Government of Canada, the 1990 Wildlife Policy for Canada, and the constitutional protections for Indigenous peoples, is reflected in wildlife legislation during this era (Donihee, 2000). These external actions are complimented by a change in wildlife values held by Canadians and a more ecological vision for wildlife (Donihee, 2000). Together, these features have pushed current wildlife legislation to further expand the definition of wildlife (Donihee, 2000).

### 2.3.2 - Defining Wildlife and the Parameters Around Wildness

Bean and Rowland (1997), indicate the definition of wildlife can be summarized as follows: "... the term wildlife has the broadest meaning recognized in federal law, encompassing all non-human and non-domesticated animals," (p.4). Plants are not included in this textbook's definition of wildlife, as they are dealt with under different subject matter in US law (Bean & Rowland, 1997). This is the only space in Bean and Rowland's benchmark text where the definition of wildlife is contemplated, leaving readers with a vague understanding and no additional context on what it means for an animal to be domesticated. The authors do note that the definition of wildlife does not have a fixed meaning, acknowledging the "...complexity of defining what wildlife is and who owns it" (Bean & Rowland, 1997, p.5).

In Canadian wildlife law literature, Donihee et al. (2002) acknowledges that the definition of wildlife fluctuates. He writes for his readers to understand the term "wildlife" to be

in the context of birds and mammals, but also noted that the term is not static and its meaning may be broader in some instances. His research documents the historical evolution of the meaning of wildlife throughout Canada, as a by-product of changing wildlife management eras.

The animal welfare movement has recently called for a tool to differentiate between wild, domestic, and tame animals, citing the lack of consensus as a considerable gap in animal related matters (Decroy, 2019). This literature proposes that there are the two main categories of wild (with subsections of free ranging and captive) and domesticated (with a subsection of feral) (Decroy, 2019). It notes that domestication is a specific process that involves changes in behaviour, genetics, and morphology/physiology (Decroy, 2019; Price, 2002; Wilkins & Tecumseh, 2014). It is documented in the literature that there are only 29 species that have been through the domestication process, 18 of which have received new taxonomic classifications (Clutton-Brock, 2013; Decroy, 2019).

It is noted in the literature that a population which is captive bred and reared is considered to be in the first step of domestication (Decroy, 2019; Price, 2002). Due to the combined artificial selection and natural selection in captivity, the population begins to show changes corresponding with domestication (Decroy, 2019; Price, 2002). However, domestication requires changes in behaviour, genetics, and morphology/physiology and therefore a captive reared population in the beginning stages of domestication will not necessarily complete the process (few have).

The transition from domestic to wild animals is determined in some instances, by the level of human intervention in the form of management (Brown, 2001; Peterson, 2004). Historically, sheep, pigs, cattle, and goats have endured this process, producing the current status of domestic livestock. Various deer species are currently subject to this practice, coined as quality deer management (QDM) (Peterson, 2004). QDM is a sliding scale of management intervention moving from wild deer at one end and domestic deer at the other (Brown, 2001; Peterson, 2004). Less invasive management such as counting, marking, and supplemental feeding correspond with wild deer, while more invasive management such as vaccination,

artificial insemination, and fencing correspond with domestic deer (Brown, 2001; Peterson, 2004).

The levels of management that currently exist across North America vary drastically (Chitwood et al., 2015). One level of management is reflective of wildness, with animals essentially free-living in large high-fenced pastures, while the other end of the spectrum has fawns reared in children's playpens, conceived through artificial insemination and largely treated as livestock (Brown & Cooper, 2006; Chitwood et al., 2015; Peterson, 2004). The latter form of management has been noted as symbolically and materially robbing a wild species of their identity and wildness (Chitwood et al., 2015).

On the QDM scale of management, private ownership of an animal is considered a management action that corresponds closest to the conception of a domestic deer. This carries the implication that a privately owned deer is inherently domestic. This raises the question, can a wild deer be owned by private interests, or conversely, once the animal is owned, is it rendered domestic? The literature is unclear on this point.

Interestingly, The Wildlife Society (TWS) defines wild ungulates as "all hoofed mammals," (Demarais, et al., 2002). This was the only comment I found about the definition of wild, wildlife or any related term made by TWS. No parameters are established by the TWS to determine wildness. Upon personal communication with the TWS Director for Wildlife Policy and Communications, it was revealed that TWS does not have a definition for wildlife. I find this particularly interesting, as the TWS document by Demarais et al. (2002) sets out to determine the biological and social issues related to "wild" ungulates in captivity, although by their definition, this would amount to every hoofed mammal. Under this interpretation, every ungulate, regardless of domestication, genetics, or ownership (either public or private) would be classified as a wild animal.

These examples help to show that the definition of wildlife, or 'wild', has not gained consensus in the literature. Organizations as COSEWIC and the International Union for the Conservation of Nature (IUCN) appear to have a more comprehensive understanding of

wildness. Consider specifically COSEWIC's decision regarding which animals to include when evaluating Plains Bison, discussed in section 2.2.3 Species at Risk. Still, these conservation organizations offer conflicting notions of "wild," which in turn are influencing conservation decisions around species protection (COSEWIC, 2010).

COSEWIC, reflecting SARA in Canada, created guidelines for interpreting the wildness of manipulated wildlife populations. Currently, SARA, and COSEWIC, define "wildlife species" as being an animal native to Canada, genetically or geographically distinct, and "wild by nature," (COSEWIC, 2013; COSEWIC, 2018). The requirement of being native to Canada is included among many definitions of wildlife, and essentially excludes species that humans have introduced into the jurisdiction (COSEWIC, 2018). The term "wild by nature," while being a requirement for a wildlife designation, is not defined in SARA (COSEWIC, 2013; COSEWIC, 2018). SARA also does not provide guidance on the interpretation of animals managed for purposes other than conservation, hybrid species, reintroductions and supplemental populations (COSEWIC, 2018). The vacancies left by SARA created the need for the supplemental guidelines to be developed by COSEWIC.

The definition of "Wildlife Species," found in the Species At Risk Act (2002) is:  
Wildlife species means a species, subspecies, variety or geographically or genetically distinct population of animal, plant or other organism, other than a bacterium or virus, that is wild by nature and

- (a) is native to Canada; or
- (b) has extended its range into Canada without human intervention and has been present in Canada for at least 50 years

Given this definition, if a manipulated population is either genetically or geographically distinct from the species wild counterparts, it is not considered part of the wildlife species (COSEWIC, 2018). Conversely, for a manipulated population to be considered part of the wildlife species, it must be both genetically and geographically similar to its wild counterparts (COSEWIC, 2018). The terminology used for this is "discrete," meaning not genetically distinct, and "evolutionarily significant," meaning not geographically distinct.

Genetic distinction in a population corresponds with the number of generations it has been manipulated, and the type of manipulation (COSEWIC, 2018). Although some captive or intensely managed populations may not experience genetic distinction from their wild counterparts due to insufficient time under management, they may still experience geographic distinction (COSEWIC, 2018). For example, when a domesticated animal leaves captivity and establishes in the wild it becomes feral (Gamborg et al., 2010). These feral populations may be self-sustaining, not requiring human intervention for population maintenance. However, the genetic distinction from domestic animals may not have occurred, preventing these animals from claiming a wild status (Gameborg, et al., 2010).

Another consideration made by COSEWIC in the determination of wildness is the intent of the population. Populations that are intended for purposes other than conservation are typically not included in the wildlife population, unless the population is not genetically or geographically distinct and does intend to contribute to the wild population at some point in time (COSEWIC, 2018). This example is relevant for wildlife operations which are created for conservation purposes but make commercial use of the population to cover operational costs (COSEWIC, 2013).

COSEWIC has interpreted “wild by nature” to have two components that must be satisfied. First, as discussed above, the population in question must be genetically and geographically distinct from populations managed for purposes other than conservation (COSEWIC, 2010; COSEWIC, 2013). Second, the population must maintain its long-term wild nature through both ecological and evolutionary functions (COSEWIC, 2010; COSEWIC, 2013). For COSEWIC, determining “wild by nature” status requires scrutinizing the degree to which natural selection is the primary formational process in a population, opposed to human manipulation (COSEWIC, 2013). The degree of management over a population is also considered in the determination of “wild by nature,” (COSEWIC, 2013). Degrees of management include intervention in breeding, survival, behaviour, movements and exposure to pathogens (COSEWIC, 2013). Figure 1 outlines COSEWIC’s above parameters around wildness in point form as an easy tool for the reader to reflect on.

Figure 1: COSEWIC Understanding of Wildlife Species

1. Native to Canada, or;
    - a. Naturally expanded range into Canada, without human intervention, **and**
    - b. has existed in Canada for 50 years, or longer
  2. Wild by Nature – Understood as having two components
    - a. Genetically and Geographically Distinct
      - i. Genetically Distinct - The population is genetically discrete, meaning that it is genetically similar to closely related populations & taxa, and that it is genetically distinct from populations managed for purposes other than conservation
      - ii. Geographically Distinct - The population is evolutionary significant in relation to closely related populations and taxa
    - b. Ecological and Evolutionarily Functionality to Support Wild Nature
      - i. Degree of human intervention in the population formational process, compared to the influence of natural selection
      - ii. Degree of Management
        1. Breeding, survival, behaviour, movement and exposure to pathogens
  3. Conservation Population
    - a. COSEWIC will typically not include populations that are established for purposes other than conservation (i.e., commercial) as part of the wildlife species, unless the population is not genetically or geographically distinct from closely related populations and taxa **and** the population is expected to contribute to the wild population
      - i. A population established for conservation is understood as intending to release individuals into the wild at some point
    - b. A captive managed or heavily managed population may be considered wildlife if the population is intended for conservation purposes
- If a population can satisfy the 3 components of a wildlife species as described by COSEWIC, it is considered part of the wildlife species. This does not necessarily mean that the species would be included in the status assessment of a species.

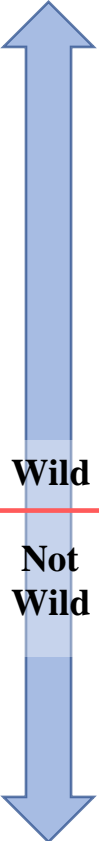
(COSEWIC, 2010; COSEWIC, 2013; COSEWIC, 2018)

The IUCN also has criteria for determining if a population is wild, for assessment purposes, described in their 2019 document, titled, *Guidelines for Using the IUCN Red List Categories and Criteria*. The IUCN's determination of wild is based on the viability of a population without management and the intensity of the management (IUCN, 2019). The continuum of management intensities used by the IUCN is roughly based off a peer reviewed article by Redford, et al. (2011). Animal populations managed in the categories of *lightly*



*managed, conservation dependant, or self-sustaining*, are considered to be wild populations on the IUCN’s scale. Conversely, populations managed under *intensely managed* and *captive managed* are classified as not wild. This distinction is not further explained. See Figure 2 for a breakdown of management level versus wild classification as determined by the IUCN based on Redford, et al. (2011).

Figure 2: IUCN Management Levels Relative to Wildness

<b>Self Sustaining</b>	-Little to no human intervention either interspecifically or extrinsically	 <b>Wild</b> <b>Not Wild</b>
<b>Conservation Dependent</b>	-Perpetual, extrinsic intervention needed to mitigate changed caused by human factors -Does not require intraspecific management (care, breeding, feeding, or direct habitat management) -At risk of habitat loss and change from climate change, human expansion and human population growth	
<b>Lightly Managed</b>	-Human intervention limited to population enhancement and habitat management -Intervention required to conserve species sustaining resources (i.e., vegetation) -Largely capable of sustaining themselves	
<b>Intensely Managed</b>	-Reliant on direct human intervention (feeding, care, breeding) -Captive reared individuals may be returned to existing wild populations -Wild populations of the species occurs	
<b>Captive Managed</b>	-Reliant on direct human intervention (feeding, care, breeding) -Species exists almost exclusively in captivity -Species is reliant on human intervention until extinction, or movement to another management level	

(IUCN, 2019; Redford, et al., 2011)

As an additional consideration noted by the IUCN, if the population of concern would not survive past 10 years without intensive intervention, it is not considered wild (IUCN, 2019). The 10-year benchmark for extinction without management is not cited or explained further in the document. In addition, managed populations that otherwise would be determined as “not wild,” are considered wild by the IUCN if the management in question is counteracting human induced

threats as shown in Figure 3 (IUNC, 2019). This is an important caveat throughout the Anthropocene, as it is estimated that every species on earth is now affected by human behaviour (Redford & Adams, 2021).

*Figure 3: Acceptable Management Levels for Protection Against Human Induced Threats*

- 1** Increasing genetic variability through population supplementation via captive herds
  - 2** Control measures for non-native predators or competitors
  - 3** Control measures for native predators or competitors (if influenced by human activity)
  - 4** Translocation between populations for genetic variability
  - 5** Habitat maintenance (vegetation succession, artificial shelters, etc.)
  - 6** Controls against disease outbreak
  - 7** Geographically protected areas
  - 8** Anti-poaching initiatives
- (IUCN, 2019)

The World Organization for Animal Health (OIE) uses a drastically different understanding of wildness that is based on genetics. The OIE defines a wild animal as one that “has a phenotype unaffected by human selection and lives independent of direct human supervision or control” (OIE Media, 2015). A captive wild animal is defined similarly to above, except it is under “direct human supervision or control, including zoo animals and pets,” (OIE Media, 2015). A feral animal on the other hand is understood to be “an animal of a domesticated species that now lives without direct human supervision or control,” (OIE Media, 2015).

In Canadian courts, “wild by nature” has been interpreted in a manner that may include captive animals with recent wild lineage (COSEWIC, 2018). Figure 4 highlights the legal principles regarding wildness classifications used in Canadian courts, used in the specific case of *Nakhuda v Story Book Farm Primate Sanctuary* (2013), an animal ownership case involving an escaped “pet” monkey roaming an Ontario IKEA, and as recounted by Shariff (2015).

Figure 4: Legal Principles Around Wildness

- Legal Principles regarding the classification as either wild or domestic animals articulated in *Nakhuda v Story Book Farm Primate Sanctuary* (2013) are as follows:
1. Wild animals are made “wild by nature.” This is determined by instinct, mode of life, habitat, the inability to domesticate, and the requirement of human intervention to keep them contained.
  2. Animals are considered either wild or domestic in common law. Notably, wild animals are not just those of savage dispositions.
  3. Domestic animals have been such since time immemorable and have no desire to escape human intervention.
  4. The wildness of an animal is based on the nature of animal, not how it is treated, managed, or other human intervention.

Adapted from Shariff (2015) & *Nakhuda v Story Book Farm Primate Sanctuary* (2013)

I have found two tests for determining whether an animal is either wild or domestic that have been used in Canadian courts, the property law test and the tort law test as outlined in Figure 5 and 6. These two tests, along with the principles articulated by the courts, determine the classification of the animal based on the inherent characteristics and nature of its species. This approach to classification is notably different than conservation organizations who determine status based on specifics of the population in question.

Figure 5: Property Law Legal Test

- Property Law (Animal Ownership) – Two Step Legal Analysis
1. First question: what is the nature of the species to which the animal belongs? This is a legal question of common knowledge. Knowledge of the habits derived from fact and experience of the species in question.
    1. If the animal is found to be *Mansuetae Naturae*, the matter is closed and the animal is considered absolute property of the original owner
    2. If the animal is found to be *Ferae Naturae*, the matter progressed to the second step
  2. The second question of the law: does the animal demonstrate *animus revertendi*? This test seeks to determine if the animal has previously demonstrated behaviour where it returns to its owner
    1. If the animal does demonstrate *animus revertendi*, the animal remains with its original owner
    2. If the animal does not demonstrate *animus revertendi*, it is no longer considered property of the original owner

Adapted from Shariff (2015) & *Nakhuda v Story Book Farm Primate Sanctuary* (2013)

Figure 6: Tort Law Legal Test

Tort Law / Strict Liability – Two Step Legal Analysis

1. First question of the law: on a species level, based on common knowledge, is the particular animal dangerous to mankind?
  - a. If the answer is yes, the animal is determined to be *Ferae Naturae*
  - b. If the answer is no, the animal is determined to be *Mansuetae Naturae*. This is only found when the animal is determined to be harmless and devoted to the service of mankind. For example, farm animals, cats, and dogs.
2. The test proceeds to a second test, not relevant to this research.

Adapted from Shariff (2015) & *Nakhuda v Story Book Farm Primate Sanctuary* (2013)

These tests are not without criticism. The property law test draws extensively on the test used for tort law, despite being two distinct areas of the law with different policy rationales and objectives (Shariff, 2015). The tests have also been criticized for a lack of clarity, as they do not provide a clear description of the parameters used for determining wildness (Shariff, 2015). For example, the first step in the property law test is based on the “nature of the species,” which is stated to be an exercise of common knowledge (Shariff, 2015). This vague description does not provide a concise understanding or hard parameters to abide by. As acknowledged by the courts in *Nakhuda v Story Book Farm Primate Sanctuary* (2013) another criticism is that common law does not leave room for welfare or conservation considerations (Shariff, 2015). Finally, the courts are criticized for uncritically adopting ancient game law principles into modern day cases (Shariff, 2015).

Both legal tests have clear policy underpinnings that determine wild status using the nature of a specific animal, not how it is managed. In some instances, this directly contradicts conservation organization’s methods for determining wild status. In addition, Canadian courts understand wildlife as it is written in legislation; as property. This can result in decisions that are not necessarily in the best interest of individual animals, wildlife, or conservation (Bean & Rowland, 1997; Shariff, 2015). This is clearly stated in the preface of *Nakhuda v Story Book Farm Primate Sanctuary*, (2013) where the court explicitly stated that it does not have the jurisdiction to determine the best interest of the animal because the animal is not recognised as an independent, living entity and is instead viewed under the law as merely property (*Nakhuda v Story Book Farm Primate Sanctuary*, 2013; Shariff, 2015).

In summary, conservation organizations, peer reviewed literature, statutes and the courts have historically had differing logic, understanding and interpretations of wildness. The review suggests that wildness is determined by both moral and cultural judgements, and has evolved over time (Redford & Adams, 2021). There is no consensus and limited measurable criteria to use for technical purposes when determining wildness, such as when determining species at risk (Decroy, 2019; Redford & Adams, 2019). When parameters do exist to determine a species as wild or otherwise, they often stand in contradiction depending on the source. This lack of understanding had led to differing legislative approaches, hindering conservation efforts (Dorning, et al., 2016).

## 2.4 The Law and Wildlife

Agreement exists among scholars of wildlife law that it is difficult to understand the laws, policies and programs that exist around wildlife without an understanding of the cultural, historical and constitutional context under which they were developed (e.g., Bean & Rowland, 1997; Geist, 1995;). This draws me to add a discussion of context around the fundamental wildlife laws, and a history of conservation, primarily in Canada.

Wildlife law and conservation in Canada is inherently challenging due to decentralized authorities, international obligations, and the ability of wildlife to move freely between jurisdictions (Kumpf & Hughes, 2016). Likewise, the boundaries that exist around wildlife law are unclear (Bean & Rowland, 1997). If a truly comprehensive review of wildlife law includes all law that has an impact on wildlife, either directly or indirectly, one would have to include virtually every environmental, agriculture and natural resource law (Bean & Rowland, 1997). In my review that follows I aim to provide the necessary context for understanding wildness in Canada.

Understanding wildlife law requires the consideration of constitutional authorities, Indigenous Rights, international treaties, the policy process, and increasingly, agriculture (Kumpf & Hughes, 2016). Further, understanding wildlife law as a tool for conservation in Canada requires consideration of the history of the North American Model of Wildlife

Conservation (NAM). A multifaceted and decentralized power structure, combined with ample stakeholders and a rich history in Canada, helped create the regulatory matrix around wildlife.

The foundation of wildlife in Canadian law is set out in constitutional authorities, contained in the Constitution Act (1867). The Constitution Act (1867) divides jurisdictions between the provincial and federal governments, referred to as heads of power. Jurisdictions are divided between the two powers in section 91 (federal) and 92 (provincial), with section 109 also having relevance as it allocates ownership of public land to the provincial governments (Kennedy & Donihee, 2006). Jurisdiction is understood as the authority to legislate over and allocate public resources (Kennedy & Donihee, 2006).

The Constitution Act (1867) has been interpreted to be an exhaustive list of ownership of public property and legislative authority (Kennedy & Donihee, 2006). Therefore, even though the subject of wildlife is not specifically mentioned, legislative authority has been fully allocated in the act (Kennedy & Donihee, 2006). This complete allocation is reinforced with “catch all” clauses being used in both section 91 and 92 (Kennedy & Donihee, 2006). For example, section 91 allocates federal authority over matters of “peace order and good government of Canada,” in relation to all subject matters not explicitly allocated or assigned to provincial heads of power (Kennedy & Donihee, 2006). This is commonly referred to as POGG powers. Similarly, section 92 authorizes provincial legislatures to govern “all matters of a merely local or private nature in the province,” (Kennedy & Donihee, 2006). In addition, if a subject is not covered in the Constitution Act (1867), it will typically fall to the jurisdiction of the federal parliament, as the list of provincial subjects is considered finite (Kennedy & Donihee, 2006). Therefore, even though wildlife is not specifically mentioned in the Constitution Act (1867), it is encompassed within various subject matters that fall to both the provincial and federal heads of power.

Due to the mixed jurisdiction over wildlife, it is considered to be an area of concurrent legislative competence, meaning that both the provincial and federal government have jurisdiction over different elements of the subject matter, although the primary responsibility belongs to the provincial governments (Donihee, 2000; Kennedy & Donihee, 2006; Kessler, 2018).

This shared responsibility over wildlife materializes as different government bodies legislating over different elements of wildlife, depending on which subject area wildlife is being viewed. Because of the breadth of the subject, it is influenced and encompassed in a variety of other subject matters which fall to both the federal and provincial heads of power (Kennedy & Donihee, 2006). This includes, but is not limited to, the subject areas of *Public Property*, *Migratory Birds*, *International & Interprovincial Trade*, *Interjurisdictional Wildlife* and increasingly, *Agriculture*. These provincial and federal authorities of these topics are explored below.

#### 2.4.1 - Provincial Authority Over Wildlife

Provincial governments hold jurisdiction and legislative authority over wildlife through laws related to land ownership (Donihee, 2000; Kennedy & Donihee, 2006). Wildlife has been repeatedly interpreted as part of the land and therefore property of the provincial governments, as recognized in section 109 of the Constitution Act (1867) (Kennedy & Donihee, 2006). Therefore, wildlife is constitutionally understood as a natural resource, and managed as such. This means that wildlife is managed as property, generally owned by the provincial government (while alive). The province's legislative authority is further reaffirmed through section 92(13) which gives legislative authority over "Property and Civil Rights in the Province," and section 92(16) "matters of a merely local or private nature," to provincial legislatures (Kennedy & Donihee, 2006).

Provincial legislative authority over wildlife has been solidified and reaffirmed through several pivotal court cases (Donihee, 2000; Kennedy & Donihee, 2006; Kessler, 2018). In addition, provincial wildlife legislation has been interpreted in some cases to reign over federal lands, including military bases and reserve land, where the provincial wildlife law may remain valid (Kennedy & Donihee, 2006). The exception to this general rule is when the federal government has legislated a special regime for wildlife, specifically within national parks (Kennedy & Donihee, 2006). The majority of wildlife habitat also falls under the jurisdiction of the provincial government through provincial ownership of crown land (Donihee, 2000; Kessler, 2018).

Provincial jurisdiction over wildlife materializes in several ways, with the most common being the establishment of a provincial Wildlife Act (Kumpf & Hughes, 2016; Passelac-Ross, 2006). As noted by Monique Passelac-Ross (2006), provincial Wildlife Acts typically have three main sections: traditional wildlife management mechanisms, habitat protections (also known as land-based wildlife management) and the identification of species at risk. These three sections are often complimented by provisions for creating funding for conservation and management initiatives, and together embody provincial jurisdiction over wildlife (Passelac-Ross, 2006). Notably, provincial Wildlife Acts extensively use regulations to achieve the detail and flexibility needed to manage wildlife (Passelac-Ross, 2006).

Traditional wildlife management mechanisms, which create the critical mass of provincial wildlife legislation, typically revolve around administrative and hunting controls (Passelac-Ross, 2006). Specific sections include administration, establishing property rights in wildlife, licencing provisions, rules for hunting, possession, use and sale of wildlife, prohibitions, enforcement, offenses and penalties (Passelac-Ross, 2006). The legislation around hunting is often extensive. Wildlife legislation decisions are not necessarily made with conservation concerns in mind and in some cases they prioritize political considerations (Passelac-Ross, 2006). Examples of this include the Alberta grizzly bear hunt, the Ontario black bear hunt, and most recently, British Columbia's grizzly bear hunt (Hennig, 2018; Passelac-Ross, 2006).

Provincial Wildlife Acts vary in their degree of management and protection of wildlife habitat. This management typically materializes as general protection mechanisms against the destruction or alteration of habitat, or their specific dwellings (Passelac-Ross, 2006). Critically important to the general habitat protection provisions is the legal definition of habitat itself. The existing definitions of habitat vary drastically between provincial Wildlife Acts, with some classifying land, water and air as habitat, while other take a more limited approach (Passelac-Ross, 2006).

The second mechanism of habitat protection usually captured by a provincial government's Wildlife Act involves the accessibility of land acquisition for protection (Passelac-



Ross, 2006). This acquisition can often happen on both public and private land, typically resulting in land use restrictions (Passelac-Ross, 2006). Land use restrictions commonly materialize as hunting restrictions, access limitations and general activity constraints (Passelac-Ross, 2006). In accordance with habitat protection, several provincial Wildlife Acts also have provisions for the creation of special conservation funds (Passelac-Ross, 2006). These funds are typically used to acquire land, fund conservation programs and support other management initiatives (Passelac-Ross, 2006).

Notably, the majority of Wildlife Acts were designed to administer hunting controls as a response to increased hunting pressure throughout the eighteen and nineteen hundreds (Donihee, 2000). This translates into current legislation that is narrow in scope and not necessarily equipped to handle modern conservation challenges around habitation protection and restoration, climate change, etc.

The primary limitation to provincial jurisdiction is the obligation of the provincial legislature to legislate only within their provincial boundary (Kennedy & Donihee, 2006). This becomes a subject for cooperative management when considering the nomadic nature of wildlife, often traveling between several political jurisdictions and requiring the cooperation of different legislative bodies. A primary example of this complication is demonstrated by migratory birds, which may travel from Canada's boreal forest to over wintering grounds in South America (Ramenofsky & Wingfield, 2007; Rosenberg et al., 2019). Caribou are another example of migratory species that move between political jurisdictions. These journeys provide not only biological challenges, but also jurisdictional ones, as several governments have the jurisdiction to legislate over the animal and the resources it relies on.

The primary takeaway from this section is that each of the provinces has jurisdiction over some components of wildlife, giving them the ability to legislate over the subject. This in turn results in each province having a Wildlife Act, where "wildlife" has been defined, individually. This has created a scenario where the definition of wildlife is not uniform across the provinces, resulting in conservation implications.

#### 2.4.2 - Federal Authority Over Wildlife

Legislative authority over wildlife falls to the federal government in the following areas: international and interjurisdictional trade, fisheries, migratory birds, nationally significant habitats and endangered species (Government of Canada, 2021; Kumpf & Hughes, 2016; Leopold et al., 2018). These categories often have blurred lines and overlapping legislation.

Federal jurisdiction over wildlife materializes as national wildlife laws such as The Canada Wildlife Act (1985), the Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act (1992) (WAPPRITA), the Species at Risk Act (2002) and the Migratory Birds Convention Act (1994). Much of the federal legislation is enacted as a result of international agreements signed by the federal government. For example, WAPPRITA is a direct manifestation of the Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES), which was ratified by the federal government of Canada in 1975 (Kumpf & Hughes, 2016). The exclusive ability of the federal government to enter into international wildlife treaties that heavily influence provincial wildlife reinforces the need for cooperative management (Kumpf & Hughes, 2016).

Section 35 of the Constitution Act (1867) recognizes First Nations, Metis, and Inuit Rights. This section has significant legal dimensions regarding wildlife, whether it be harvest, conservation initiatives (such as conservation closures), or duty to consult. This is a critical component of Canadian wildlife law. Although a right-based analysis is beyond the scope of this research, the importance of considering this in future research is noted in section 6.6.

Understanding constitutional authority requires an understanding of the limitations of such. Clear constitutional limitations are drawn out for the heads of power in Constitution Act (1867) and confirmed by the courts (Kennedy & Donihee, 2006). These limitations prevent either head of power from legislating outside of their jurisdiction without the law being found to be *ultra vires* (i.e., beyond the authority of the legislative body) (Kennedy & Donihee, 2006). This would result in the courts conducting a “pith and substance” analysis to determine which government has jurisdiction over the subject matter, as recognised by the Constitution Act (1867) (Kennedy & Donihee, 2006). This analysis can result in either government found to have

jurisdiction, or a shared legislative authority, known as concurrent jurisdiction (Kennedy & Donihee, 2006). When considering the complexity and relationship of wildlife to the environment, concurrent jurisdiction is typically found (Kennedy & Donihee, 2006).

The primary take-away regarding federal authority over wildlife in Canada is that the federal government has the recognized authority to legislate over some components of wildlife, giving it the authority to define wildlife within legislation. There is an inherent complication in wildlife law with multiple constitutional authorities, all with the ability to define wildlife. The ability of the federal government and every individual province to individually define wildlife in their jurisdiction has resulted in the lack of a uniform definition across Canada. We currently have several different legal definitions of wildlife, leaving certain species considered wildlife in one jurisdiction and not wildlife in another, hindering conservation efforts.

#### 2.4.3 - Concurrent Jurisdiction Over Wildlife

Concurrent legislative authority occurs when both levels of government have jurisdiction over a subject matter (Kennedy & Donihee, 2006; Kumpf & Hughes, 2016). Several areas of concurrent legislative authority are specifically noted as such in the Constitution Act (1867) (Government of Canada, 2018). Agriculture, of specific importance when discussing wildlife law due to game farming, falls under this category (Government of Canada, 2018). Other matters, such as the environment, are not specifically mentioned by the Constitution Act (1867) and have been interpreted by the courts to fall under the jurisdiction of both the federal and provincial governments (Government of Canada, 2018). Given the relationship between wildlife and the environment, concurrent jurisdiction and co-management is typically required (Kennedy & Donihee, 2006).

The importance of this is apparent when considering both the natural movement of wildlife across political boundaries and human induced movement, often for trade and agriculture purposes. For example, the provinces have the legislative authority to regulate transport and possession of wildlife within their borders, but the federal government regulates over interjurisdictional and international trade (Kennedy & Donihee, 2006; Kessler, 2018;

Kumpf & Hughes, 2016). Together, the two heads of power create the legislative framework around moving and trading wildlife in Canada (Kessler, 2018).

## 2.5 Chapter Summary and Initial Conceptual Frame

The primary takeaway from the literature and document review is the lack of a universal definition for wildlife and the parameters used to determine wildness. This lack of clarity, enhanced by varying definitions of wildlife, has created conflict and hindered conservation efforts. The need for further understanding around the definition of wildlife and the parameters used to determine wildness is important in the effort to engender more effective wildlife conservation in Canada.

The inherent complexity of wildlife law in Canada contributes to the lack of a definition of wildlife and parameters to determine wildness. The constitutional jurisdiction of both the provincial and federal government, in addition to decades of layered wildlife law, and the multi-jurisdictional nature of wildlife, create an intricate regulatory matrix. This is further nuanced by a steady intrusion of the private sector into wildlife management, largely through game farming and animal ownership.

To address this knowledge gap, I have developed a conceptual framework for determining wildness, leveraging information outlined in the literature review (Refer to Figure 7). The framework utilizes parameters from conservation organizations, peer reviewed literature and Canadian case law. The framework attempts to capture all of the established parameters in an effort to be inclusive and encourage a more universal way of determining “wild” for the overall purpose of creating more uniform conservation policy in Canada.

*Figure 7: Conceptual Framework for Determining Wildness in Canada*



This draft of the framework is designed to be moved through sequentially, with the requirement to satisfy one parameter before progressing down to the next. If a parameter is not satisfied, the population in question would not be considered wild.

Through interviews, additional document analysis, case law analysis and a jurisdictional scan, subsequent chapters consider the utility of this framework and its ability to serve as an aid to help others think about what already exists in literature for defining wildlife and other key parameters around wildness.

## Chapter 3: Research Methods

### 3.1. Worldview considerations

There are a multitude of philosophical worldviews that exist and may influence the research design, data collection procedures, and approach to interpretation that a researcher chooses (Creswell, 2014). One view that has particularly influenced my way of thinking is the conservationist worldview, which has been deeply instilled in me since childhood. Growing up, I was a self-appointed stream inspector, play fort engineer, and wildlife tracker. I would often spend my days intertwined with the branches, high up in the trees, or down in the stream looking for frogs. This love for all things wild bled into my undergraduate degree where I learned that we must not only defend wildlife and their habitats, but the legal basis that allows us to protect wildlife and their habitats (Geist, 1995). This is hardly a lesson in natural sciences, instead favouring policy, social sciences, humanities and economics, among other disciplines (Geist, 1995). The conservationist worldview guided my undergraduate thesis research which examined hunting wastage policies across Canada. This research was used to refine hunting policy in the province of Manitoba.

The conservationist worldview, my beliefs, and my background have all shaped the way I perceive the world. Although this thought process has in turn shaped the foundation of this research, I have remained conscious throughout this study to avoid bias wherever possible and reduce the impact it may have on my research findings.

### 3.2. Strategy of Inquiry

This research was conducted using a qualitative approach. The questions surrounding how wildlife is framed within the context of wildlife management in Canada is inherently a “people” problem. Fundamentally, this research examines how we think about wildlife and subsequently, how these thoughts are reflected in Canadian law and wildlife systems.

### 3.3 Data Collection Strategies

To achieve the objectives of this study, I used the following data collection strategies: document analysis, case law review, jurisdictional scan and semi-structured interviews. Considering both primary and secondary sources allowed for a more in-depth understanding and

analysis, while also assisting in the triangulation of data. This variation in data collection methods, resulting in multiple sources of evidence, worked to assist in both the validity and reliability of research outcomes.

The purpose of this research was to address a gap in Canadian law and for this reason data collection methods were centered in Canada. The jurisdictions evaluated, case law reviewed, documents analyzed, and participants interviewed were all primarily Canadian. While there were exceptions during each phase of research, as noted in the specific methodology sections below, I kept the scope of the research focused on Canada. I acknowledge that First Nations, Metis and Inuit people have a unique relationship with and understanding of Canadian wildlife. However, it was beyond the scope of this research to consider a rights-based perspective. This is further discussed in section 6.6 Future Research.

As well, while there is no undeniable biological reason to exclude fisheries from consideration in my work, a complete analysis of its inclusion falls beyond the scope of this project. This is because fisheries occupy an entirely different area of Canadian law separate from terrestrial and semi-aquatic vertebrate species (Bean & Rowland, 1997). Canadian fisheries laws have a long and early jurisprudence and are specifically understood in the context of The Constitution Act (1867), starkly different than other wildlife (Donihee, 2000).

Again, with no compelling biological reasoning, invertebrates and plants are largely excluded from statutory, jurisdictional interpretations of wildlife. In the parameters outlined in provincial and federal Wildlife Acts, specifically being a vertebrate is often listed, excluding invertebrates. Similarly, plants are seldom referenced in statutory definitions of wildlife. The scope of this project does not allow for a comprehensive analysis of invertebrate and plant species, but does allow for some considerations, as documented throughout the thesis. While a complete analysis of fish, plants, and invertebrates is beyond the scope of this research, the framework presented in Chapter 2 and refined in the thesis is applicable to their classification.

My research was divided into two phases. In the first phase of research, I continued to build on the existing literature review to further understand the established parameters around

wildlife definitions and the conservation implications of these distinctions. This was accomplished using a three-pronged approach, including document analysis, case law review, and a jurisdictional scan. The results of these methods were used to refine the initial framework presented at the end of Chapter 2 to better encompass the existing parameters around wildness.

The second phase of research consisted of conducting semi-structured interviews with wildlife professionals to gauge the application, accuracy, and relevance of the framework. The framework was provided to participants, and interviews were conducted to understand its practical implication. The interview results were used to further refine the framework and add context to the study.

### 3.3.1 Phase 1 - Document Analysis

Document analysis was an important data collection method that continued throughout the duration of this study. As the research progressed, documents that were formerly unattainable or unknown, became accessible. For example, I became aware of the work COSEWIC had undertaken around wildness, and their document guidelines on manipulated wildlife species (COSEWIC, 2018). This document provided parameters around wildness and contextual information that was incorporated into the framework. Similarly, Emma Marris published a book titled *Wild Souls* (2018) during this research, which highlighted the lack of guidelines and increasing tensions around wildness. Kent Redford and William Adams also published a book titled *Strange Natures* (2021) throughout the course of this research. This book reviewed synthetic biology (genetic engineering) and the future implications for conservation. New information from documents and books such as these were added into the literature review and where applicable, applied to the framework.

Throughout the analysis, documents were examined for parameters used to understand wildness, relevant contextual information, and definitions of “wild” and related terms. Due to the conceptual and nuanced nature of this work, and the limited scholarly attention it has received, it was difficult to find documents specific to the topic. The majority of documents evaluated were not focused around wildness, but instead commented on it in passing. Because wildness was not



the primary focus of documents, they were challenging to locate as key word searches and online database searches would typically not isolate them.

While limited documents specifically focused on wildness revealed themselves, dozens of other documents provided valuable contextual information and insight. This information was compiled into the literature review, and used to refine the framework, which can be used as a future guiding framework to supplement other strategies of inquiry.

### 3.3.2 Phase 1 - Case Law Review

Canadian case law was reviewed to gain an understanding of the court's interpretation of wild and legal tests that have been applied. Relevant case law from outside of Canada was included if it was determined to be important to understanding Canadian case law or statute law. For example, some case law from the United States was included, such as *Diamond v Chakrabarty* (1980) as the event in this case mirrored the Canadian case of *Harvard College v Canada* (2002). While the focus of these searches were Canadian-based, this United States case was determined to add valuable context to the research and was therefore included, among other non-Canadian cases.

Corresponding with the average date for the onset of the sustainable wildlife management era in Canada, the case law review only extended as far back from the present day to 1980 (Donihee, 2000). Cases that extended beyond the 1980 benchmark were included if they were deemed to be relevant to the research. This was determined by way of identifying cases that were repeatedly noted in the literature, or frequently referenced in case law.

Not all case law between 1980 and present day was included in this study. Instead, case law that was available, directly relevant, and mentioned in the literature or in participant interviews was included. I looked for cases that directly considered if an animal was wild or domestic. These cases were typically litigating individual liability for animal related injuries or property rights in animals, revealing an undertone of privatization. I also sought out cases regarding the patenting of higher life forms in Canada and the USA due to their direct implication to the understanding of wildness.

What I looked for in the cases considered were the legal tests used to determine if an animal was wild or domesticated. Other valuable contexts that aided in the understanding of wildness from the court's perspective were also included in this study. This portion of the research was assisted by environmental lawyers at the University of Manitoba who helped with interpreting case findings and understand legal language.

### 3.3.3 Phase 1 - Jurisdictional Scan

I conducted a jurisdictional scan at the beginning of research phase one. Through this scan I collected the Canadian provincial, territorial, and federal definitions of wildlife and other related terms, and compiled them into a single table (refer to Appendix C – Jurisdictional Scan Results). These results were further refined and incorporated into the research (refer to *Table 1: Jurisdictional Scan Results*). The Canadian definitions of wildlife and other related terms are of specific interest to this research as they often encompass the parameters that each jurisdiction uses to understand wildness. Therefore, statutory definitions aid in gaining a comprehensive understanding of wildness in Canada and developing the conceptual framework.

Scoping around the jurisdictional scan was important to manage the volume of work. Only the primary provincial and federal Wildlife Acts, and the primary provincial and federal Game Farming Acts were searched for the legal definitions of the following terms: *wildlife*, *wildlife species*, *wild by nature*, *exotic wildlife*, and *domestic game farm animal*. If a term was deemed to be interchangeable with one of the specified definitions above, it was included. For example, in lieu of *domestic game farm animal*, the following terms from various game farming legislation were included: *game production animal*, *game farm animal*, and *diversified livestock animal*. Having prespecified key search definitions assisted in preventing scope creep for this data collection method, while still providing insight into the statutory parameters used across Canada to determine wildness.

As with other data collection methods, the jurisdictional scan focused primarily on reviewing legislation in Canada. Throughout the research, progressive or informative definitions from outside of Canada were considered and included in the research depending on their

relevancy and context. While jurisdictions outside of Canada were not included, they were included in the research results write up, where applicable. This ensured that while the research remained focused on the objective of addressing the Canadian knowledge gap, other relevant jurisdictions outside of Canada were considered in context.

#### 3.3.4 Phase 2 - Semi-structured Interviews

Qualitative research frequently uses interviews as a form of data collection where there is a “spoken exchange of information,” (Dunn, 2000, p.101). “Interviews allow the researcher to uncover what is relevant to the participants, while discerning “how meaning differs among people,” (Dunn, 2000, p. 103). In addition, interviews are a flexible data collection method, as they can be designed to be dynamic, morphing as the research progresses (Dunn, 2000). As new information is incorporated into the research design, either through interviews or other data collection methods, the questioning and interview style can be altered, which I found to be a benefit in this study.

For this research, I used semi-structured interviews. Semi-structured interviews allowed for flexible questioning, while keeping the interview context focused (Dunn, 2000). This was accomplished through designing a mix of open and closed ended questions, with secondary questions prompting “how” and “why” responses (Newcomer, 2015).

The interview schedule (Appendix A) was developed in consideration of the literature review and my conceptual framework. The primary focus of the interviews was around the conceptual framework, speaking to the overall purpose of my research, offering the opportunity to refine and test my framework in hopes of harmonizing the parameters of wild for use in more effective wildlife conservation in Canada.

In the interviews, I began by identifying any missing parameters that existed, which in some instances resulted in additional documents being revealed. The initial parameters of the conceptual framework were also explored and validated. This worked to verify the conceptual framework, ensuring it made sense and was of value given the scope of the research. I inquired if the frame would be of use when addressing conservation challenges that interviewees are aware

of. Ultimately, interviews were used to reveal any parameters that needed to be removed or included, and if the frame would be useful for conservation purposes. The interviews were also used to explore how privatization of wildlife for commercial purposes has influenced the narrative around wildness and the definition of wild.

Interviewees were selected based on their engagement in wildlife law and policy, wildlife conservation, and relevant academia, such as those who have done work around understanding wildness. When selecting interviewees, engagement was interpreted as either (1) direct engagement through management, policy, academic pursuits, or (2) indirect engagement, examining individuals who have been affected by wildlife law and policy. Due to the theoretical and nuanced nature of this research, interviewees were selected carefully to ensure they had the experience needed to comment on the subject matter.

I conducted 12 interviews, as determined by the availability and existence of experts. My previous work experience in environmental and wildlife fields and a volunteer position on the Canadian Section of The Wildlife Society, Conservation Affairs Committee enabled connections with numerous wildlife professionals across Canada. Access to wildlife professionals was further expanded by a former Canada-wide undergraduate research project, and other academic pursuits. Other interviewees were found through the literature review with authors who would consistently appear and whose contact information was publicly available. The 12 interview participants fell into the categories of academics, government biologists, lawyers, and private sector biologists.

Due to the global pandemic, all interviews were conducted online, via Zoom. All participants had access to the internet. All interviewees were provided with the questions and a copy of the framework at least one week prior to the interview. This prompted reflection by the interviewees, providing an opportunity to contemplate the conceptual nature of the questions (Dunn, 2000). I believe this produced a better interview and translated into a more robust framework. The majority of interviews took approximately forty-five minutes, and did not extend past an hour, to elude interviewer and interviewee fatigue (Newcomer, 2015). Interviews were all recorded for transcription purposes. Permission to record was granted in all interviews.

### 3.4 Data Analysis

For the jurisdictional scan definitions for the various pre-determined key terms (*wildlife, wildlife species, wild by nature, exotic wildlife, and domestic game farm animal*) were inputted into a Microsoft Excel spreadsheet for organization and easy comparison purposes; see *Appendix C - Jurisdictional Scan* for a finalized version of this table. Definitions were analyzed and parameters used to determine the wildlife of a species/population were extracted. These parameters were further analyzed and compared. If determined to be beneficial to the goals of conservation, the parameters were incorporated into the framework. All parameters were documented, regardless of whether or not they were included in the framework.

Regarding the analysis of case law, any legal definitions, parameters, and tests identified that could assist in determining “wild status” were documented. Extracted parameters were analyzed and compared, while the legal understanding of wildness was noted. If determined to be beneficial to the means of conservation, the parameters were incorporated into the framework.

Throughout the document analysis, information that provided parameters around the definition of wildness or context to the significance in understanding wildness were used to supplement what was learned through the literature review. Parameters surrounding the term wildness that are used by NGO’s, academics, and other bodies were extracted, analyzed, and incorporated into the framework if they were determined to be relevant. All parameters were documented, regardless of whether or not they were included in the framework.

Data from the semi-structured interviews was transcribed as soon as possible to ensure accuracy. Data was organized and analyzed using Descript and Microsoft Word. Transcriptions were coded and a thematic analysis was undertaken to synthesize the responses. Parent themes for interview data analysis largely followed key themes found in the literature review- genetics, geography, management, purpose of population, etc. New themes that emerged from the interviews were documented. Themes were identified by how often they arose in interviews and how much of the interview was spent discussing them. Quotes were extracted from interview transcripts, which highlighted themes to be incorporated in the results.

### 3.5 Data Validation

The validity of this research was ensured by using several different means of data collection. The document analysis, case law review, jurisdictional scan, and semi-structured interviews all worked to cross-verify the data I collected. The use of multiple data collection tools support the methodological triangulation of data to assist in validation (Creswell & Poth, 2018).

To assist in data validation, the research design was reviewed by my thesis advisor and committee before the research commenced. Furthermore, as the research progressed, the semi-structured interview questions were also reviewed and amended by my thesis advisor. During the analysis, my advisor reviewed the results I derived from the data collected. This form of “peer review” serves to validate my study and my interpretation of the data (Creswell & Poth, 2018).

Interview participants were selected based on their experience with the subject matter, regardless of conservation perspective, aiding in data validation. This resulted in lawyers, biologists, and academics all being selected for the interviews, providing a wide breadth of inclusion. I also retained consistency in my interview approach during the research.

Throughout the research, I clarified and remained vigilant of potential bias stemming from my conservationist world view. I took specific precaution to analyse the data and clearly communicate from an unbiased perspective.

### 3.6 Project Limitations

A direct research limitation that I had to contend with was the extensive nature of the legal materials around wildlife in Canada. There are hundreds of Acts and Regulations which effect wildlife in Canada, making a comprehensive jurisdictional scan beyond the capabilities of this study (Shields, 2022). Instead, the scope of this research focused on the jurisdiction’s primary Wildlife Act and Game Farming Act. Similarly, jurisprudence around wildlife in Canada can be traced back centuries ago to Ancient Rome (Donihee, 2000). Therefore, scoping around the case law case law review was also extensive as described in Chapter 4. I also did not consider

the implications of Section 35 of the Constitution and the rights of Indigenous Canadian's as noted in Chapter 2.

Complications surrounding this research topic stem from the dozens of conceivable scenarios in which wildlife populations are manipulated. Even the consideration of unit included in this study range from vertebrates, invertebrates, fish, and plants, in an endless spectrum of management, confinement, genetic manipulation, and experience. It was noted in interviews that it may be impossible to create a framework that satisfies all scenarios

## Chapter 4: Jurisdictional Scan and Case Law Review

### 4.1 Jurisdictional Scan

Research in phase one of my study included a jurisdictional scan that analyzed provincial, territorial, and federal definitions of “wildlife,” “wild by nature,” “game farm animal,” and other related terms. These statutory definitions provided parameters around the jurisdictions’ interpretation of wildness, aiding in a more comprehensive understanding. I found that Canadian jurisdictions have differing definitions of wildlife, and that in some instances these definitions contradict each other. For example, while some jurisdictions specifically state that an animal must be native to the jurisdiction to be considered wildlife, others state that invasive species are included. Similarly, the breadth of inclusion varies between jurisdictions; some jurisdictions only consider mammals and birds in their understanding of wildlife, while others are more inclusive, listing organisms such as fish, invertebrates, plants, fungi, algae, and bacteria. As I expected, the jurisdictional scan revealed that there is no consensus on the definition of wildness in Canada.

Provinces across Canada, and the federal government, typically regulate animals through statute law in the form of a Wildlife Act. The Acts themselves typically differ in terms of the key definitions used, but generally subscribe to the same wildlife management system. This system is characterised by hunting and trapping controls governed by a licencing structure as the main regulatory method. It is typical of wildlife statutes across Canada to read along the lines of “X is prohibited, unless authorized by a licence.”

Access to the Wildlife Acts themselves varied across the country. Some Wildlife Acts were easy to access online, with accessible regulations and schedules, while others were more difficult to obtain directly from the provincial website and resulted in using CanLii: Canadian Legal Information Institute. The same was true with jurisdictional Game Farming Acts. Some jurisdictions had all relevant Acts organized with one-click access and a user-friendly template. Other jurisdictions required considerably more time and effort to access relevant laws, although all legislation was located online. The following section introduces the Wildlife Acts across Canada.



#### 4.1.1 Jurisdictional Scan Results

A brief description of each jurisdiction's primary wildlife act, how it defines wildlife, and any interesting features from the jurisdiction is included below.

The British Columbia (BC) Wildlife Act (1996) did not define wildlife descriptively, except by using the parameters of a vertebrate species, prescribed by regulation, and not including alien invasive species. This is one of the few jurisdictions where fish may be included in the definition of wildlife. Fish were included in this definition only when specifically stated under the act and predominantly for licencing provisions and the establishment of Wildlife Management Areas. Overall, BC provided little guidance around wildness in the province.

The Alberta (AB) Wildlife Act (2000) was complicated and difficult to navigate. Wildlife was not defined descriptively, but instead listed by species in a schedule contained in wildlife regulations. Under Alberta statute, an animal can be classified as either "wildlife," "controlled alien species," or "present diversified livestock animal." The parameters for those categories were not specified in the statute and are therefore unclear. In addition to not describing wildlife, the Act contains several distinctive categories such as subject animals, controlled animals, and a multitude of other exceptions (Shields, 2022). Curiously, hybrids resulting from the crossing of two listed wildlife species were considered wildlife, making Alberta one of the few jurisdictions to address hybrids in statute. Overall, Alberta's legislation was unclear on the parameters of wildness.

The Saskatchewan (SK) Wildlife Act (1998) is standard among most Canadian Wildlife Acts. The parameters around wildlife are listed as follows: (1) any vertebrate (excluding fish), (2) wild by nature in Saskatchewan, (3) hybrids that have an ancestor within four generations that is wild by nature, and (4) includes exotic wildlife. Wild by nature is not further defined or referenced. Saskatchewan has a wide breadth of inclusion, as hybrids and exotics are encompassed in the understanding of wildlife. This Wildlife Act places a heavy emphasis on licencing and permitting.

The Manitoba (MB) Wildlife Act (1987) also follows the standard approach in Canada. The parameters around wildness are: (1) any vertebrate (not including fish), (2) indigenous to the province, (3) wild by nature, and (4) declared/listed by the regulations. Manitoba's understanding around a game production animal (GPA) provides guidance on property rights, as a GPA is defined as being a privately owned animal, "... or in the case of a wild animal, held under permit pursuant to the Wildlife Act." This indicates that even while farming wild animals, property rights remain with the crown, and that a wild animal cannot be owned in Manitoba. Notably, Manitoba's Wildlife Act was easily accessible and user friendly.

While the primary act that regulates wildlife in Ontario (ON) is titled the Fish and Wildlife Conservation Act (1997), it is similar to the Wildlife Act's in other provinces. The understanding of both wildlife and domestic hinges on the term "wild by nature," which is not defined. Invasive species are defined as an animal belonging to a species that is not native to Ontario and harming / likely to harm the natural environment. This definition hinges on the human value metric of "harmful to the ecosystem" and is a unique approach in Canada that creates the space for naturalized species not to be considered invasive. Interestingly, Ontario has a separate statute to regulate invasive species, the Invasive Species Act (2015). Other jurisdictions typically regulate invasive species using the provincial Wildlife Act, or a regulation made thereunder. Ontario also has two distinct categories of captive animals. Wild animals that are held for commercial purposes are classified as "farmed animals," while animals that are not wild by nature are classified as "domestic animals."

The Quebec (QC) Act regulating the conservation and management of wildlife is similar to other jurisdictions, with hunting and trapping controls governed by a licencing structure. Quebec's primary wildlife act is titled the Act Respecting the Conservation and Development of Wildlife (2002). Unique to Quebec is the absence of a definition for wildlife, and instead, the use of the terminology "animal." Quebec defines "animal" using parameters unique among Canada, such as from a blood line not selected by man, and not easily distinguishable from wild species by size, colour, or shape. Quebec also includes both invasive and captive species in its understanding of wildlife (animals). During interviews with Quebec residents, it was noted to be aware of translation nuisances from French to English within the Act.

The New Brunswick Fish and Wildlife Act (1980) has a broad description of wildlife. The definition includes exotic animals and animals reared in captivity, creating a bigger scope than other wildlife acts across the country. Fish and fish hybrids are not included in this definition of wildlife and are regulated separately.

Similar to other hunting, trapping, and fishing statutes across Canada, Nova Scotia's Wildlife Act (1989) relies on a licencing structure as the primary regulatory method. The Act uses a descriptive definition for wildlife, exotic wildlife, and domestic organism, providing useful parameters for this research. For example, a "domestic animal," is defined as an animal substantially altered from wild progenitor through selective breeding, while "deer farmed animals" are listed by species. However, the definition for wildlife does hinge on the term "wild by nature," which is not defined.

The Prince Edward Island (PEI) Wildlife Conservation Act (1988) definition of Wildlife is not descriptive in nature, but unique in breadth. It has among the most expansive understanding of wildlife, being one of the only jurisdictions to include invertebrates, and the only one to include plants. PEI's definition of both "game farm animal," and "commercial animal," is listed species by species with the caveat of the animal being used commercially.

The Newfoundland and Labrador's (NFL) Wildlife Act (1990) unhelpfully describes wildlife as "wild animal, fish or bird to which this Act or the regulations apply." This non-descriptive definition does include fish and captive animals but is unclear in its inclusion of invasive species. Interestingly, this is the only jurisdiction where the term "wildlife" is separated into two words, reading "wild life." In addition, while never explicitly defining or mentioning invasive or exotic species, the act does appear to attempt to address the challenge through import, export, and possession provisions. The term "wild animal" is further broken down in the regulations for the specific purpose of regulating importation; the following is written " (2) For the purpose of this part the term "wild animal" means any live animal, including without limitation, any amphibian, arthropod, bird, coelenterate, crustacean, fish, other invertebrate, mammal, mollusk or reptile, whether or not bred, hatched or born in captivity and including any

egg or offspring of them,” (Wild Life Regulations, 1996). This breakdown does not appear to apply to any other sections of the regulation except banning the importation of wild life.

Yukon’s understanding of wildlife under their Wildlife Act (2002) is a vertebrate species that includes captive wildlife, does not include fish, and is wild by nature in the territory. Yukon uniquely lists species that are prescribed as “not wildlife,” opposed to listing that species that are.

The Northwest Territories has a descriptive definition of the term wildlife that includes both invertebrates and vertebrates, captive wildlife, and species “wild in nature,” but not fish. This definition specifically includes animals that fit the above criteria but are domesticated or held in captivity, as listed in the Wildlife Act (2013).

The Nunavut Wildlife Act (2003) includes a detailed definition of wildlife with outlined parameters. Similar to the COSEWIC understanding of the term “wild by nature,” the prescribed definition of wildlife in the Act includes populations that are geographically and genetically distinct, native to the jurisdiction or extended without human intervention, and have been present in the jurisdiction for at least fifty years. Captive and domestic animals are not specifically addressed.

The Federal Species at Risk Act (SARA) (2002) includes a descriptive definition of wildlife species: a geographically or genetically distinct population of animal, plant or other organism (other than bacterium or virus), that is wild by nature, and is native to Canada or has extended its range into Canada without human intervention within the last fifty years. This description is similar to Nunavut’s and COSEWIC’s interpretation of the term “wild by nature.” Although this definition uses the term “wild by nature” and the term has momentous importance when determining a species status, it is not defined or referenced further in the Act (COSEWIC, 2018). This lack of guidance resulted in COSEWIC interpreting the term, creating the 2018 Guidelines on Manipulated Species (COSEWIC, 2018).

The Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act (WAPPRIITA) (1992) is the federal government’s implementation of

the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). This Act is primarily focused on the import, export, and interprovincial movements of species listed by CITES. While there is no definition for a wild animal, wild by nature, or any similar term, the Act does define “animal,” as any specimen, whether living or dead, of any animal listed in the appendix of the Convention. This non-descriptive definition doesn’t provide parameters around wildness useful to this research.

The Canada Wildlife Act (1985) is limited in scope. Wildlife is defined as any animal belonging to a species that is wild by nature or that is not easily distinguishable from such a species. The act does not further reference or define the term “wild by nature.”

The legislation responsible for regulating game farming on a federal level is the Health of Animals Act (1990), and the subsequent Health of Animals Regulations (1990). Neither of these define or reference the term “wildlife.” There is no provided understanding of a domestic versus wild animal in this legislation, and therefore, it was not included in the jurisdictional scan.

#### 4.1.2 Jurisdictional Scan Analysis

Every jurisdiction analysed provided a definition for wildlife (or similar term) which included parameters used as criteria to define wildlife under statute law, as discussed in the following section. The parameters and the breadth of inclusion vary considerably across the nation, creating a scenario where a species or specific population (i.e., captive) may be considered wildlife in one jurisdiction but not another. *Table 1: Jurisdictional Scan Results* contains a summary list of noted parameters and the jurisdictions that use them as part of establishing what is wildlife. The table is organized to display the parameters that a jurisdiction considers wildlife, some of which speak to the breadth of inclusion.

A “Y” on *Table 1: Jurisdictional Scan Results* notes that that parameter was listed as included in the jurisdiction’s understanding of wildlife. Conversely, a “N” means that the jurisdiction specifically states that the given parameter was not included in their definition of wildlife. If the jurisdiction’s legislation that I reviewed did not specifically address the given parameter, the space was left blank.

Table 1: Jurisdictional Scan Results

Jurisdiction / Parameters	British Columbia	Alberta	Saskatchewan	Manitoba	Ontario	Quebec	New Brunswick	Nova Scotia	Prince Edward Island	Newfoundland and Labrador	Yukon	Northwest Territories	Nunavut	Federal - Species at Risk Act	Federal - WAPPRITA*	Federal - Canada Wildlife Act
<b>Vertebrate</b>	Y		Y	Y			Y	Y		Y	Y	Y				
<b>Invertebrate</b>									Y			Y				
<b>Fish</b>	Y		N	N			N		Y	Y	N	N				
<b>Birds</b>						Y	Y		Y	Y						
<b>Plants</b>									Y					Y		Y
<b>Reptiles</b>				Y		Y			Y							
<b>Amphibians</b>				Y		Y			Y							
<b>Algae and Fungi</b>									Y							
<b>Bacteria</b>									Y					N		
<b>Wild by Nature</b>				Y	Y			Y			Y		Y	Y		Y
<b>Wild by Nature in Jurisdiction</b>			Y				Y					Y				
<b>Native to Jurisdiction</b>				Y									Y	Y		
<b>Invasive</b>	N		Y				Y	Y								
<b>Captive</b>						Y	Y	Y		Y	Y	Y				
<b>Prescribed by Regulation</b>	Y	Y		Y				Y	Y			Y				
<b>Hybrids</b>		Y	Y**	Y			Y	Y								
<b>Geographically or Genetically Distinct Population</b>													Y	Y		
<b>Propagating Naturally in the Wild</b>						Y										
<b>Bloodline Not Selected by Man</b>						Y										
<b>Not Easily Distinguishable from Wild Species</b>						Y										Y

Notes:  
Y: This parameter is included in the definition of wildlife in this jurisdiction  
N: This parameter is explicitly stated not to be included in the definition of wildlife in this jurisdiction  
Blank: This parameter is not specified / included in the definition of wildlife in this jurisdiction

\*Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act (1992)  
\*\*Within four generations of wild by nature

As *Table 1: Jurisdictional Scan Results* shows, the breadth of what is included as wildlife varies by jurisdiction. Most jurisdictions specify that the species must be a vertebrate, while three jurisdictions include invertebrates, and three include fish. This difference is significant, as the inclusion of invertebrates materializes as provincial protection for entire swaths of species, such as mollusks, crustaceans, insects, annelids, and echinoderms, that otherwise would be without statutory protection. Prince Edward Island (PEI) breaks down the inclusion of invertebrates even further, by listing algae, and fungi, etc. This is a significant expansion away from exclusively including vertebrates, as seven jurisdictions have done.

Similarly, the inclusion of fish also has a substantial impact. Although provincial jurisdictions do not have constitutional authority over fish, the inclusion of fish in the understanding of wildlife allows provincial legislative avenues to pursue protective measures around them. For example, in BC the inclusion of fish as a parameter in wildlife is used to create Wildlife Management Areas.

One observation that would benefit from further investigation is the potential relationship between the commercial interests of a jurisdiction and its inclusion of commodified wildlife. For example, the inclusion of fish in the understanding of wildlife in BC and Newfoundland and Labrador, and inclusion of invertebrates (crab and lobster) and fish in PEI. These jurisdictions are unique in their inclusion of fish and invertebrates, as well as their economic relationship to the categories.

It is important to acknowledge that PEI provides an outlying definition in the jurisdictional scan by defining wildlife as "... wild life, wild mammals, birds, reptiles, amphibians, fish, invertebrates, plants, fungi, algae, bacteria and other wild organisms as prescribed by the regulations" (Wildlife Conservation Act, 1998). While this definition does not provide guidance on what "wild" means, it is the broadest in terms of scope of species included. In other words, it goes the furthest in its inclusion, creating an avenue for possible protection for thousands of additional species. PEI's inclusion of organisms down to bacteria, compared with other provinces that only included vertebrate species, highlights the inconsistencies in understanding wildlife and wildness in Canada.

The jurisdictional scan revealed heavy use of the term “wild by nature,” and “wild by nature in jurisdiction.” Nine out of fourteen jurisdictions used this term to define wildlife, with only BC, AB, QC, PEI, and NFL not employing the term. However, the term “wild by nature” is not further defined or referenced in any legislation, despite being essential to trying to determine what wildlife is. As discussed in Section 2.2.3, complications associated with this term became apparent in COSEWIC’s efforts to list Plains Bison, and also impacted their subsequent guidelines on manipulated wildlife populations, published in 2018. While COSEWIC now has parameters around the term “wild by nature,” the jurisdictional scan revealed that no other jurisdiction does. Notably, COSEWIC’s understanding of the term “wild by nature” is not codified in SARA, but instead published as internal guidelines.

Another notable example of contradictions among parameters in statute is the inclusion of invasive species compared to species native to jurisdiction. Three jurisdictions state that invasive species are included as wildlife, three jurisdictions specify that the animal must be native, one jurisdiction notes that the species must not be invasive, and three other jurisdictions state that the animal must be wild by nature in the jurisdiction. Because “wild by nature in jurisdiction” was not further defined or elaborated in any of the legislation, it was not possible to decipher its meaning just by reading the statutes. Discounting the “wild by nature in jurisdiction” parameter, seven Canadian jurisdictions are directly at odds with whether to include invasive species as wildlife. The vocabulary differences surrounding invasive versus native species inclusion is also noteworthy, as it adds to the complexity of wildlife law in Canada.

The inclusion of the parameter “captive,” is important in the understanding of what a jurisdiction considers wildlife. Six jurisdictions specified that an animal in captivity is still classified as wildlife if it meets the remaining criteria. This is accomplished with language similar to “... whether or not it is born or kept in captivity...”. The inclusion of captive animals as part of wildlife appears to divide Canada, with the Western side of the country (BC to ON) not referencing captive species, and the Eastern half of the country and territories referencing them. Notably, there are no jurisdictions that specifically exclude captive animals, but instead, many do not reference them in their provincial Wildlife Acts.



The parameter of “prescribed by regulation” is used in several jurisdictions’ definition of wildlife. In practice this typically materializes as a list or schedule within a regulation under the Wildlife Act that lists specific species that are considered wildlife. For example, in Manitoba, the definition of wildlife includes “declared by regulation to be big game, a game bird, a fur bearing animal, an amphibian or reptile, or a protected species.” These categories are then outlined in schedules, with species in that category listed as shown in *Figure 8: Manitoba Wildlife Act (1987), Schedule A*. Similar vocabulary is used in PEI, which also uses regulatory schedules to outline which species are included as wildlife (refer to *Figure 9: Prince Edward Island Wildlife Act (1998), Schedule*).

*Contains information from the Government of Manitoba, licensed under the OpenMB Information and Data Use License (Manitoba.ca/OpenMB)*

*Figure 8: Manitoba Wildlife Act (1987), Schedule A*

<p><small>Wildlife, C.C.S.M. c. W130 Schedule A</small></p>	<p><small>Conservation de la faune, c. W130 de la C.P.L.M. Annexe A</small></p>																																		
<b>SCHEDULE A</b>																																			
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<p>Division 1 — Big Game</p> <table border="0"> <tr> <td>Moose</td> <td><i>Alces alces</i></td> </tr> <tr> <td>Elk</td> <td><i>Cervus elaphus</i></td> </tr> <tr> <td>Barren-ground Caribou</td> <td><i>Rangifer tarandus groenlandicus</i></td> </tr> <tr> <td>Woodland Caribou</td> <td><i>Rangifer tarandus caribou</i></td> </tr> <tr> <td>White-tailed Deer</td> <td><i>Odocoileus virginianus</i></td> </tr> <tr> <td>Mule Deer</td> <td><i>Odocoileus hemionus</i></td> </tr> <tr> <td>Black Bear</td> <td><i>Ursus americanus</i></td> </tr> <tr> <td>Gray (Timber) Wolf</td> <td><i>Canis lupus</i></td> </tr> </table>		Moose	<i>Alces alces</i>	Elk	<i>Cervus elaphus</i>	Barren-ground Caribou	<i>Rangifer tarandus groenlandicus</i>	Woodland Caribou	<i>Rangifer tarandus caribou</i>	White-tailed Deer	<i>Odocoileus virginianus</i>	Mule Deer	<i>Odocoileus hemionus</i>	Black Bear	<i>Ursus americanus</i>	Gray (Timber) Wolf	<i>Canis lupus</i>																		
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<p>Division 2 — Fur Bearing Animals</p> <table border="0"> <tr> <td>Beaver</td> <td><i>Castor canadensis</i></td> </tr> <tr> <td>Short-tailed Weasel</td> <td><i>Mustela erminea</i></td> </tr> <tr> <td>Long-tailed Weasel</td> <td><i>Mustela frenata</i></td> </tr> <tr> <td>Coyote</td> <td><i>Canis latrans</i></td> </tr> <tr> <td>Fisher</td> <td><i>Martes pennanti</i></td> </tr> <tr> <td>Arctic Fox</td> <td><i>Canis lagopus</i></td> </tr> <tr> <td>Red Fox</td> <td><i>Canis vulpes</i></td> </tr> <tr> <td>River Otter</td> <td><i>Lutra canadensis</i></td> </tr> <tr> <td>Badger</td> <td><i>Taxidea taxus</i></td> </tr> <tr> <td>Bobcat</td> <td><i>Felis rufus</i></td> </tr> <tr> <td>Marten</td> <td><i>Martes americana</i></td> </tr> <tr> <td>Mink</td> <td><i>Mustela vison</i></td> </tr> <tr> <td>Muskrat</td> <td><i>Ondatra zibethica</i></td> </tr> <tr> <td>Red Squirrel</td> <td><i>Tamiasciurus hudsonicus</i></td> </tr> <tr> <td>Wolverine</td> <td><i>Gulo gulo</i></td> </tr> <tr> <td>Raccoon</td> <td><i>Procyon lotor</i></td> </tr> <tr> <td>Lynx</td> <td><i>Felis canadensis</i></td> </tr> </table>		Beaver	<i>Castor canadensis</i>	Short-tailed Weasel	<i>Mustela erminea</i>	Long-tailed Weasel	<i>Mustela frenata</i>	Coyote	<i>Canis latrans</i>	Fisher	<i>Martes pennanti</i>	Arctic Fox	<i>Canis lagopus</i>	Red Fox	<i>Canis vulpes</i>	River Otter	<i>Lutra canadensis</i>	Badger	<i>Taxidea taxus</i>	Bobcat	<i>Felis rufus</i>	Marten	<i>Martes americana</i>	Mink	<i>Mustela vison</i>	Muskrat	<i>Ondatra zibethica</i>	Red Squirrel	<i>Tamiasciurus hudsonicus</i>	Wolverine	<i>Gulo gulo</i>	Raccoon	<i>Procyon lotor</i>	Lynx	<i>Felis canadensis</i>
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<p>Division 3 — Game Birds</p> <table border="0"> <tr> <td>Ruffed Grouse</td> <td><i>Bonasa umbellus</i></td> </tr> <tr> <td>Gray (Hungarian) Partridge</td> <td><i>Perdix perdix</i></td> </tr> <tr> <td>(Wild) Turkey</td> <td><i>Meleagris gallopava</i></td> </tr> <tr> <td>Rock Ptarmigan</td> <td><i>Lagopus mutus</i></td> </tr> <tr> <td>Willow Ptarmigan</td> <td><i>Lagopus lagopus</i></td> </tr> <tr> <td>Spruce Grouse</td> <td><i>Canachites canadensis</i></td> </tr> <tr> <td>Sharp-tailed Grouse</td> <td><i>Pedioecetes phasianellus</i></td> </tr> </table>		Ruffed Grouse	<i>Bonasa umbellus</i>	Gray (Hungarian) Partridge	<i>Perdix perdix</i>	(Wild) Turkey	<i>Meleagris gallopava</i>	Rock Ptarmigan	<i>Lagopus mutus</i>	Willow Ptarmigan	<i>Lagopus lagopus</i>	Spruce Grouse	<i>Canachites canadensis</i>	Sharp-tailed Grouse	<i>Pedioecetes phasianellus</i>																				
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<p>Plus Migratory Game Birds protected in Canada under the <i>Migratory Birds Convention Act, 1994</i> (Canada).</p>																																			

Figure 9: Prince Edward Island Wildlife Act (1998), Schedule

**SCHEDULE**  
**PROHIBITED WILDLIFE SPECIES**

**Wild animals of the following species shall not be sold or kept in captivity as pets:**

1. All Artiodactyls ungulates, except domestic goats, sheep, pigs and cattle.
2. All Canidae, except the domestic dog.
3. All Crocodylia (such as alligators and crocodiles).
4. All Edentates (such as anteaters, sloths and armadillos).
5. All Elephantidae (elephants).
6. All Erinaceidae, except the African pigmy hedgehog.
7. All Felidae, except the domestic cat.
8. All Hyaenidae (hyenas).
9. All Marsupials, except sugar gliders.
10. All Mustelidae (such as skunks, otters and weasels), except the domestic ferret.
11. All Primates (such as gorillas and monkeys).
12. All Pinnipeds (such as seals, fur seals and walruses).
13. All Perissodactyls ungulates, except the domestic horse and ass.
14. All Procyonidae (such as raccoons, coatis and cacomistles).
15. All Pteropodidae (bats).
16. All Raptors, diurnal and nocturnal (such as eagles, hawks and owls).
17. All Sciuridae, including prairie dogs and woodchucks.
18. All Ratites (such as ostriches, rheas and cassowaries).
19. All Ursidae (bears).
20. All venomous wild animals, including snakes, toads, insects, spiders and fish.
21. All Viverridae (such as mongooses, civets and genets).
22. All Testudines (turtles and tortoises).
23. All threatened or endangered species protected by the Convention on International Trade in Endangered Species (CITES).
24. All wildlife that has not been captive bred, unless otherwise exempted.
25. All species of Serpentes (snakes) that can grow to an average size or size range greater than 3 meters.

(EC535/19)

Hybrid species are largely undiscussed in statute, with only five jurisdictions making reference to their inclusion. Saskatchewan provides the most prescriptive inclusion of hybrids with the criteria that the animal must have an ancestor within and including four generations of a species that was wild by nature. The four other jurisdictions that reference the inclusion of

hybrids specify this along the lines of “a hybrid offspring” of a species mentioned in the act. This leaves ambiguity around the generations of hybrid offspring that would be encompassed by the act. Overall, the remaining jurisdictions do not specifically exclude hybrids, but instead do not reference them.

Genetically or geographically distinct is a parameter used by the federal government and Nunavut. This parameter is also found in the literature created by COSEWIC and is used in the Species at Risk Act (2002) as a parameter of wildlife. These parameters are used by COSEWIC to understand the term “wild by nature,” which is referenced in SARA.

The final three parameters in *Table 1: Jurisdictional Scan Results* are “propagating naturally in the wild,” “bloodline not selected by man,” and “not easily distinguishable from wild species.” These parameters are only employed by Quebec and no other provinces/territories. Except for the term “not easily distinguishable from wild species,” which is used in the federal Canada Wildlife Act (1985).

Overall, although there is some alignment across the jurisdictions in Canada for parameters surrounding wildness, several key criteria do vary geographically, highlighting the importance of developing a uniform and systematic framework to be used throughout the country. To further explore parameters used to understand wildness in Canada, case law was also reviewed.

## 4.2 Case Law Review

Relevant Case Law in Canada, the United States (US) and the United Kingdom (UK) was reviewed to further explore relevant parameters for defining wild species. In general, Canadian common law has been described as a “disorganized conglomeration of legal principles embedded in past judicial decisions,” (Shields, 2022), with legal authors being among the only entities organizing decisions into comprehensible collections. This opinion is largely reflective of my experience working with wildlife case law for this research.

The following cases were reviewed as part of the Case Law Review:

*Table 2: Case Law Review*

<b>Type</b>	<b>Case Name</b>	<b>Country</b>	<b>Details</b>
Liability	<i>McLean v Thompson et al</i> (2009)	Canada	Hybrid wolf dog determined to be <i>ferae naturae</i>
Liability	<i>Cowles v Balac</i> (2005)	Canada	Tiger determined to be <i>ferae naturae</i>
Liability	<i>Janata-Bzowska v Lewis</i> (1997)	Canada	Dog determined to be <i>mansuetae naturae</i>
Liability	<i>Spanton v Laviolette</i> (1977)	Canada	<i>Mansuetae naturae vs ferae naturae</i> is cited
Liability	<i>McQuaker v Goddard</i> (1940)	UK	Camel determined to be <i>mansuetae naturae</i> ; Determination of <i>mansuetae naturae vs ferae naturae</i> is made based on animal's class or genus, not on individual animal
Liability	<i>Tutin v Chipperfield Promotions</i> (1980)	UK	Camel determined to be <i>ferae naturae</i> , revising earlier decision
Liability	<i>Behrens and Another v Bertram Mills Circus LTD</i> (1957)	UK	Trained Burmese elephant determined to be <i>ferae naturae</i>
Property	<i>Palmer v Nova Scotia</i> (2011)	Canada	Exotic turtle is "wildlife" in jurisdiction and removal from the wild into captivity does not alter status of being "wild by nature"
Property	<i>Wiley v Baker</i> (1980)	USA	Escaped farmed elk determined to be wild; keepers loss of qualified property rights when the animal escaped and retained natural liberty
Property	<i>Mullet v Bradley</i> (1898)	USA	Escaped sea lion determined to be wild; keepers loss of qualified property rights when the animal escaped and retained natural liberty
Property	<i>Baily v Smith</i> (2019)	USA	No private property rights found; Captivity of farmed deer does not alter wild status

Property	<i>Nakhuda v Story Book Farm Primate Sanctuary</i> (2013)	Canada	Pet monkey determined to be wild; keepers loss of qualified property rights when the animal escaped and retained natural liberty
Property	<i>Campbell v Hedley</i> (1917)	Canada	Escaped captive fox determined to have only qualified property rights, as it is found to be <i>ferae naturae</i> . Referenced Blackstone' interpretation of <i>mansuetae naturae</i> vs <i>ferae naturae</i> ; established qualified property rights in <i>ferae natuae</i> , and absolute property rights in <i>mansuetae naturae</i>
Patent Rights	<i>Harvard College v Canada</i> (2002)	Canada	Supreme Court of Canada determined that higher life forms (plants, animals, and seeds) could not be patented
Patent Rights	<i>Diamond v Chakrabarty</i> (1980)	USA	Determined that higher life forms (plants, animals, and seeds) could be patented
Definitional Inclusion	<i>Almond Alliance of California et al v Fish and Game Commission</i> (2022)	USA	Four species of bumble bees were determined to be included in the definition of fish, and therefore eligible for statutory protections

4.2.1 Case Law Review Legal Tests

The need for the courts to determine an animal’s status as wild or domestic has arisen in the context of liability, property rights, and definitional inclusion for the purpose of legislative protection. The cases I evaluated for this research were primarily based out of Canada but also included cases from The United States of America and United Kingdom. Both liability and property case law can hinge on the court’s determination of an animal as either wild or domestic. This distinction was articulated most clearly in *Campbell v Hedley* (1917) where parameters were placed on the distinction of wild versus domestic. These parameters are reflected in *Table 3: Court’s Parameters of Wildness*.

Table 3: Court's Parameters of Wildness

Domestic Animal	Wild Animal
<i>mansuetae naturae</i>	<i>ferae naturae</i>
<ul style="list-style-type: none"> <li>• Tame by nature</li> <li>• From time immemorial accustomed to man and subject to his will</li> <li>• By habit or training live in association with man</li> <li>• No disposition to escape</li> </ul>	<ul style="list-style-type: none"> <li>• Wild by nature</li> <li>• Because of habit, mode of life, or natural instinct, are incapable of being completely domesticated</li> <li>• Require the exercise of art, force, or skill to keep in subjection</li> </ul>

<ul style="list-style-type: none"> <li>• Includes cattle, horses, sheep, dogs, cats, goats, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Includes bears, eagles, rabbits, pigeons, fish, reptiles, foxes, tigers, etc.</li> </ul>
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The court’s understanding of wildness was developed in the context of civil liability and understood as a concept called “scienter.” Common law’s distinction between wild and domestic arose from the need to determine if scienter was required before liability was found. The owner of a domestic animal will not be held liable for damages caused by the animal, unless they knew the animal had a propensity to cause harm (i.e., a dog that had a history of violence). However, wild animals are assumed to be dangerous, and no knowledge of animal specific propensity for violence needs to be proven before liability is found (i.e., a Polar Bear (*Ursus maritimus*) held in captivity in a circus). These questions of liability directly hinge on an animal being wild or domestic, as reflected in *Table 4: Liability in the Courts*.

*Table 4: Liability in the Courts*

<b>Domestic Animal</b>	<b>Wild Animal</b>
<i>mansuetae naturae</i>	<i>ferae naturae</i>
Strict liability only applies if the owner is aware the animal has a dangerous disposition	Strict liability immediately applied because the animal is classified as part of a dangerous class of animals

Some jurisdictions have made statutory changes to the understanding around liability for domestically classified animals. For example, several jurisdictions have implemented absolute liability / strict liability through statute on domestic animals. This is typically used for domestic dogs in order to place responsibility on owners to prevent harm, but can also be used for all domestic animals, as is done in Manitoba’s Animal Liability Act (1998).

There are several liability cases reaffirming the distinction between *ferae naturae* versus *mansuetae* in Canada (e.g., *McLean v Thompson et al.* 2009, *Cowles v Balac* 2005, *Janata-Bzowska v Lewis* 1997, and *Spanton v Laviolette* 1997). *Table 2: Case Law Review*, outlines the established cases and their relevance to the determination of wild. One case of particular interest was *McLean v Thompson et al.* (2009), where a hybrid wolf dog injured an individual in BC. The court was then forced to determine if this hybrid was domestic or wild. To make this determination the following was cited:

*Fleming states that the test for classifying a species appears to be its special danger to mankind. Bears, zebras, tigers, elephants, chimpanzees, dingoes and coyote-dog hybrids have been branded as dangerous, camels have not. Classification of a particular species is a question of law for the court, to be decided either on the basis of judicial notice or expert evidence*

- *McQuaker v Goddard* (1940)

The court sought to answer the question of whether the wolf dog hybrid belonged to a class of species that is harmless by nature. It was noted in the ruling that wolf dog hybrids do not occur in nature and are a creation of humans. However, based on expert opinion given, it was determined that the hybrids were not harmless by nature, and therefore belonged to a class of animals categorized as wild (*ferae naturae*). A similar ruling is reflected in *Temple v Elvery* (1926), in the case of coyote dog hybrids attacking an individual. These hybrids were also determined to be *ferae naturae*.

The classification assigned to a species does not always remain constant over time. The assignment of a camel as domestic in the United Kingdom, in *McQuaker v Goddard* (1940), was later reversed in *Tutin v Chipperfield Promotions* (1980). The initial decision in *McQuaker* was made on the premise that camels were not found in the wild anywhere on Earth, and therefore, must be domestic. *Chipperfield* revised that classification, assigning camels as wild in the UK, although they may be domesticated elsewhere. This revision was made with the new knowledge that wild camels may exist in the world.

The legal test for determining if an animal is domestic or wild for purposes of assigning liability for harm is essentially if the species to which the animal belongs is dangerous to mankind. This determination is decided by the testimony of expert advice or judicial notice. It has been noted that this approach has caveats that must be considered. Namely, that the dichotomy around classifying a species as wild may be a product of the social value of the

animal (Chevalier-Watts, 2007). The courts discretion around the topic has also been cited as “authority rather than reason,” (Chevalier-Watts, 2007).

Amid writing this section in July 2022, four species of bees were determined to be classified as fish under California legislation for the purposes of species protection (Grzincic, 2022). When the Fish and Game Commission listed the species under the state Species at Risk legislation, seven agriculture groups argued that the act did not protect invertebrates. In the California court of appeals it was determined that bees fit in the definition of fish under the act, allowing them to retain protection (Grzincic, 2022).

A fictional case that has fooled legal authors for decades is *Regina v Ojibway* (1965), in which a horse was determined by the courts to be a bird. In this parody case, the court determined that feathers need not be natural, and that two legs were a statutory minimum, allowing a horse with a down pillow for a saddle to be included. It was noted that “we are not interested in whether the animal in question is a bird or not in fact, but whether it is one in the law.” This case was mistakenly referenced in the introductory chapter of the primary wildlife law text, *The Evolution of National Wildlife Law*, by Bean and Rowland, 1997.

The distinction between domestic and wild is based on species characteristics, although whether this understanding is based on an individual animal or a species is somewhat unclear. In the case of *McLean v Thompson et al.*, (2009), the decision was made that the hybrid belonged to a “class of animals” not harmless by nature, as opposed to the individual animal. Conversely, *Campbell v Hedley* (1917), and *Nakhuda v Story Book Farm Primate Sanctuary* (2013), appear to have made the determination based off of the individual animals. *Campbell v Hedley* (1917) specifically stated “...no room for doubt as to the class to which the fox in question should be assigned.” However, the individual assessment in both of these cases was determined by species characteristics.

The individual animal approach used in *Campbell* and *Nakhuda*, contrasts the historical English law approach, later codified in UK law, of determining the species status. *McQuaker v Goddard* (1940) states specifically that an animal is to be judged by the “genus or class of which



it belongs,” opposed to the individual animal’s qualities. I could not find any specific Canadian commentary on the issue, although it appears that species characteristics are at least routinely considered.

#### 4.2.2 Case Law Review Property Rights

The distinction between wild and domestic is highly important in the arena of animal ownership due to the corresponding property rights. While domestic classifications of animals are subject to absolute property, wild classifications are subject to only qualified property rights. This makes a considerable difference and has been the premise of lawsuits that I’ve reviewed for this research, the key findings of which are summarized in this section.

A wild animal may be subject to qualified property rights while they are in the possession and control of a keeper. If the animal returns to its natural liberty and ferocity, the qualified property right may be extinguished, provided the animal does not demonstrate recall (*animus revertendi*). In practice, this means that an elk born and bred in captivity that escapes confinement is no longer subject of property. The property interest in the escaped wild animal ceases when the animal regains its natural liberty. This has been demonstrated in *Campbell v Hedley* (1917), *Palmer v Nova Scotia* (2011), *Nakhuda v Story Book Farm Primate Sanctuary* (2013), and several cases out of the USA.

A question of vested property rights was revealed in *Campbell v Hedley* (1917), where a captive bred and reared fox escaped and was subsequently shot by a neighbor. It was determined that the fox was wild and therefore only subject to qualified property rights. These rights were then extinguished when the fox escaped and did not demonstrate recall (*animus revertendi*). A similar story was told in *Mullet v Bradley* (1898), regarding the ownership of a sea lion in the USA. The animal was determined to be wild, and therefore only subject to qualified property rights, despite significant efforts and resources used to initially capture the animal.

*Palmer v Nova Scotia* (2011) litigated the classification of an exotic turtle as either wild or domestic, the corresponding property rights it was subject to, and if the animal’s classification would change when removed from the wild where it was initially found. This case has direct

conservation implications, as the family who found the exotic turtle aimed to keep the animal as a pet, while the Department of Natural Resources in Nova Scotia wanted to dispatch the animal due to disease risks posed to native turtle species. Invasive species are well documented in their risks to native species (Schneider, 2019). This case demonstrates the court's potentially significant influence on conservation outcomes. Ultimately, the exotic turtle was determined to be classified as wild and held subject only to qualified property rights while in direct control of the family. Because Nova Scotia's definition of wildlife included "exotic wildlife," the Wildlife Act vests property of all wildlife in the province to the Crown. The *Palmer* decision also noted that temporary removal from the wild does not alter an animal's usual status of being "wild by nature."

Of direct interest to current conservation concerns is in the property rights and status of farmed wildlife. *Wiley v Baker* (1980) directly contends with this issue in the USA. It was determined that a born and bred farmed elk was still considered a wild animal and therefore, only subject to qualified property rights. This issue was litigated again through *Bailey v Smith* (2019), in the USA, with considerable conservation implications.

In *Bailey v Smith* (2019), it was argued that farmed elk were private property and therefore not subject to mandatory chronic wasting disease controls imposed by the state. The court determined that elk remained wild animals and therefore public property, subject to state-imposed disease controls. It was found that the elk were held privately only through permission of a permit granted by the state, and that permit did not vest property rights. This is a critical case with momentous conservation concerns. Notably, the repercussions of this case were realized when a breeder was caught violating CWD controls and subsequently convicted (Jefferson, 2019). Speaking to the seriousness of this issue, the breeder was given \$1.5 million in financial penalties, six months of house arrest, and three years' probation (Jefferson, 2019). As a conservation safety measure, his animals were also euthanized due to CWD concerns (Jefferson, 2019).

The commonly accepted rule of wild animals being subject to qualified property rights, and domestic animals being subject to absolute property rights is not without exception. There

are two common law exceptions. First, animals that demonstrate *animus revertendi*, or the intention to return, and secondly, animals that are immediately pursued upon escape. Another form of exception is statutory, as was seen in Alberta.

In 2014, Alberta cabinet caused concern in the conservation community when they quietly passed new regulations that gave elk farmers absolute property rights for farmed animals (Henton, 2014). This made Alberta one of the only jurisdictions in North America to afford game farmers rights to escaped animals (Henton, 2014). This change sparked concern of CWD spread and genetic pollution in wild elk (Henton, 2014). Cabinet justified the move by stating that elk seldom escape, farmers have incentive to quickly retrieve the animal, and that CWD has not been detected in Alberta's farmed herds in over a decade (Henton, 2014). However, in 2011, 17 farmed elk were euthanized by Wildlife Officers after escaping, demonstrating that farmed elk escapes do in fact happen. Ironically, less than a year after this regulatory change was made, CWD infected elk were detected in Alberta's farmed elk herds. Worse yet, the information was only made public due to whistle blower actions (Henton & Derworiz, 2015).

An emerging area at the periphery of this research is genetically modified and legally patented wild classes of animals and their property right classification. It is established in both Canada and the USA that while domestic animals can retain absolute property rights over them, wild animals can only have qualified property rights. This contradicts established patenting case law in the USA that ascertains that a creature of human ingenuity, whether living or not, is subject to patent and therefore absolute property rights. The premier patenting case in the USA for higher life forms, which includes genetically modified animals, is *Diamond v Chakrabarty* (1980).

Canada's primary higher life form patenting case is *Harvard College v Canada* (2002). This 5-4 Supreme Court of Canada decision was against patenting higher life forms, which in this case was a transgenic mouse. It was determined that higher life forms were not patentable because there is not sufficient control over the invention, and reproducibility is inconsistent (MacCallum & DeMarco, 2003). Notably, Canada is one of the only Western countries that have

taken this approach; the USA, Japan, and European countries have all allowed higher life forms to be patented (MacCallum & DeMarco, 2003).

As synthetic biology and genetic modification broaches into wildlife, the question of property rights and patents will be pressed. Perhaps through liability, when a genetically modified dog with genes from several other species has injured another, or through property, imagined through a swath of circumstances regarding wildlife privatization and husbandry settings. Genetic modification will add significant complexities into wildlife law that the courts may be forced to reckon with. The speed at which we are approaching these questions is rapid, with open field releases of a genetically modified animals and the commercialization of wildlife genomes (Redford & Adams, 2021).

#### 4.3 Summary

The Phase 1 results of this thesis were divided into two key activities, a jurisdictional scan and a case law review, both of which provided insight into understanding the definition of wildlife in Canada. The follow summarizes key observations for each of each of these activities.

##### 4.3.1 Jurisdictional Scan

There are approximately 250 statutes and regulations that effect wildlife in varying degrees across Canada (Shields, 2022). This materializes as multiple statutes per jurisdiction that may define wildlife and are at times, contradictory. This jurisdictional scan only reviewed each province's primary Wildlife Act and Game Farming Act, and related federal statutes. It was beyond the scope of this research to expand past these acts into their subsequent regulations.

My review of Nova Scotia statutes revealed multiple, inconsistent definitions. Specifically, the Nova Scotia Wildlife Act (1998), Provincial Parks Act (1989), and Forests Act (1989) all had different definitions of "wildlife," and "domestic organism." These differing definitions also had multiple parameters for understanding/interpreting wildness. This is one example of the sorts of inconsistencies that can occur even with a single jurisdiction.

Through the jurisdictional scan I created a list of commonly used, and explicitly not used, parameters to understand wildness across Canada. These parameters give insight into significant discrepancies between jurisdictions in understanding of wildness. The most commonly used parameter by Canadian jurisdictions is the term “wild by nature,” which was never defined in any of the legislation within which it appears (see Table 5).

*Table 5: Summary of Statutory Parameters*

Vertebrate	Invertebrate
Fish	Birds
Plants	Reptiles
Amphibians	Algae and Fungi
Bacteria	Wild by Nature
Wild by Nature in Jurisdiction	Native to Jurisdiction
Invasive	Captive
Prescribed by Regulation	Hybrids
Geographically or Genetically Distinct	Propagating Naturally in the Wild
Bloodline not Selected by Man	Not Easily Distinguishable from Wild Species

In general, the definitions of wildness were found to be drastically different in scope, and in some cases even contradictory in nature, such as around the inclusion or exclusion of invasive species. The variation in inclusion between jurisdictions is also considerable, with some jurisdictions only including vertebrates, with others including a wide variety of specimens down to plants and bacteria in their understanding of wildlife. These findings emphasize the potential room for legal confusion when addressing conservation concerns. For example, as Aune and Wallen., (2010. pp 75) state, “This confusion in the legal status of bison is probably the single most important obstacle impeding ecological restoration and hindering a nationwide conservation strategy.” Overall, the jurisdictional scan revealed that there is no consensus in Canadian statute regarding the definition of wildlife or corresponding parameters of wildness.

#### 4.3.2 Case Law Review

The Case law review revealed that the courts have established a method for determining a species as either wild or domestic and the corresponding property rights an animal is subject to. However, these legal principles were also developed through liability considerations, and are furthermore rooted in ancient game law, perhaps making them ill equipped to handle the ample

challenges of the 21<sup>st</sup> century. They also do not provide strict or scientific parameters used to make the distinction between wild and domestic, but instead frequently rely on human value judgements of perceived danger.

Four of the cases reviewed had direct relevance to conservation. Three cases reviewed private ownership and the ability of the government jurisdiction to implement wildlife disease control measures. The fourth case involved the private property ownership of an escaped sea lion. Two of the cases reviewed the ability to patent higher life forms, which may influence conservation outcomes. The remaining cases considered how the courts distinguish between wild and domestic animals in cases involving liability.

There are two categories that courts have used to classify an animal: wild (*ferae naturae*) or domestic (*mansuetae naturae*). This determination is made based on the value proposition of whether the species is dangerous to humankind or not. Expert opinion or judicial notice is used to make this determination and this process of determination lacks distinct parameters. From a property law perspective, generally speaking, a wild animal is subject only to qualified property rights, while a domestic animal is subject to absolute property rights.

Upon review of common law surrounding wildlife, it was found that many cases are prompted by the ownership of wildlife, whether it be elk for shooter farms, foxes for fur, sea lions and elephants for entertainment, or exotic turtles and monkeys as pets. It is the imposed control of human will that prompts this area of law. This imposed will of humans in the form of animal ownership is found to create conservation concerns around disease control and invasive species management. These ownership distinctions have significant implications over conservation outcomes, especially in the areas of disease control and invasive species management.

The courts understanding of wild versus domestic was developed around the inherent danger of an animal for the purposes of assigning liability against the animal's owners. While this is useful in the context of liability, it is not necessarily helpful in other policy areas, such as

with animal welfare and conservation. This is discussed by Shariff (2015) in the context of animals being considered merely property under the law, opposed to sentient beings.

The context of wildlife management is shifting with increased animal manipulation during the Anthropocene (Schnieder, 2019). The existing law is challenged by new and novel questions regarding patenting life forms, animal husbandry, and little monkeys wearing coats walking through IKEA. Additionally, many of the precedent-setting cases focus on assigned liability against owners for dangerous animals, which may not be as valuable an approach in other policy areas such as animal wildlife and conservation. In the courts these wildlife-related scenarios are still reviewed through ancient game law, prompting calls of the past case law being unfit to address current issues at hand (Shariff, 2015).

#### 4.4.3 Framework Rethink

Based on the information collected in the jurisdictional scan and case law review, I have further refined the defining wildness, initially presented in Section 2.5, as shown in *Figure 10: Revised Conceptual Framework for Determining Wildness in Canada*.

*Figure 10: Revised Conceptual Framework for Determining Wildness in Canada*



This draft of the framework is still intended to be moved through sequentially, with the requirement to satisfy one parameter before progressing down to the next. If a parameter is not satisfied, the population in question would not be considered wild.

The list of commonly used and explicitly not used parameters employed by jurisdictions in Canada assisted in the revision of the framework. It became obvious that the breadth of inclusion around what was considered wildlife was a significant feature in statute law with drastic variation between jurisdictions, requiring further examination within the framework. In particular, the first parameter of the framework was adjusted to reflect breadth of inclusion, now reading “animal, plant or other organism. Other than a bacterium or virus. Including fish.” This parameter reflects a wide understanding of wildness, only excluding bacterium and viruses. The



parameters of native to jurisdiction, genetically distinct, geographically distinct, degree of management, and purpose of population all remained in the framework.

The parameter of nature of the species in question (parameter 7 in Figure 10), was retained as the last parameter in the framework. This parameter reflects the court's understanding of wild versus domestic as the human value proposition of the nature of the species in question. The case law review revealed the significance of the court's interpretation of wildness in conservation matters, reaffirming the importance of including it in the framework.

## Chapter 5: Experts Weigh In

### 5.1 Semi-structured Interviews

The purpose of conducting semi-structured interviews during my research was to verify the parameters, validity, and design of the draft conceptual framework. A total of ten questions and four sub questions were asked during the interviews (refer to Appendix A); this process was described in Chapter 3. Interviews began on February 18<sup>th</sup>, 2022 and I completed them on April 18<sup>th</sup>, 2022. I conducted twelve interviews with a variety of participants including wildlife lawyers, academics, private sector biologists, and government biologists.

This chapter progresses through interview results beginning with the complexity of the project, framework design, structure, and utility, participant views on the courts, and the role of commercial interests in determining wildness. This chapter then reviews interview comments on current parameters and thoughts on any missing parameters. The chapter concludes by summarizing interview results and providing discussion on the implications to the framework.

#### 5.1.1 The Complexity of Determining “wild”

The most prominent interview theme that emerged was the complexity of designing an approach for determining wildness. Every participant I interviewed noted the difficulty in creating a framework that would be applicable to all living populations and on a global scale, as highlighted in the following quote:

*...that's probably why nobody has done this before, because the complexity of variation across plants, animals, and fish, to try to arrive at a number or a timeline that is going to work across all of that biological complexity is going to be potentially not possible.*

The complexity of designing a workable framework was highlighted throughout every interview. It was noted that while I had “exactly the right topic” it would be difficult to transition it into a useful tool because it is a more sprawling issue than would fit nicely into a framework. One comment was that a baseline understanding of parameters used to assess wildlife would be useful, while a framework may be “way too complicated.” It was suggested that a framework

with hard yes or no outcomes would invite argument and may not be useful practically. Instead, it was recommended to use a narrative of why what is wild in Canada matters, and to whom; essentially providing the context of the project and the parameters revealed throughout the research without attempting to make absolute statements.

The difficulty of making an absolute decision about “yes, this population is wild,” or “no, this population is not wild,” was a significant interview theme. It was noted that nearly every parameter included in my framework had complicated and evolving literature. It was suggested that using parameters around captivity, such as limited mobility and highly manipulated, to determine if a population was not wild, would be a good starting point. This stems from one participant’s thought that it is easier to definitively determine what is *not* wild, as opposed to what *is* wild. They suggested that attempting to ensure the result is a set of definitive statements may water down the quality of work produced. One participant articulated their concern regarding arriving at absolute decisions in the following way:

*I fear that it could be taken out of context. ...I fear that a strict definition is going to hurt us more than help us. That's my fear. The whole idea, big picture wise, I'm supportive of you looking into this. I am nervous about coming up with one definition that fits all.*

A key theme highlighted primarily by biologists is the need for the framework to be grounded in ecology. One participant went as far as to say that one parameter should consider if the subject in question was a keystone species or not. It was questioned by another participant what the individual parameters and overall framework tie to.

The majority of biologists interviewed suggested that the outcomes of the framework should support conservation biodiversity, and generally, to err on the side of conservation. One participant stated that the critical ecological component is asking the question “what do we have to do about this species to prevent it from undermining the ability of the system to sustain all the species we really care about?” The example of wild horses in the US was used; “you can fight about whether wild horses should be out there or not based on the definition, but that's not what counts, what counts is what the heck are they doing to range land and wildlife. They're trashing

the heck out of it.” This participant was essentially making the point that it does not matter if the animal is wild or not, what matters is the effect on the landscape. This logic suggests that a population or individual can be wild in one place and circumstance and not another.

The understanding that the question of “what is wild,” is a value and management question over a strictly biological question, also surfaced in multiple interviews. It was noted to be transparent about the nature of the question and be cautious about “pretending it’s about science, when it’s really about how the bison ranchers don’t want federal legislation concerning their bison.” It was suggested to prioritize the management aspect of the issue to turn the decision making about wildness into a more applied topic. It was further suggested that this could be accomplished through restructuring the framework with categories of considerations instead of absolute statements.

#### 5.1.2 Framework Design

The difficulty of creating a comprehensive framework that would be of utility over temporal scales was noted in interviewee responses around first impressions of the framework and its specific parameters. The need for the framework to account for a dynamic system with climate elasticity was highlighted in multiple interviews. In particular, it was questioned how the framework would account for variability related to climate change. The concerns raised around temporal scales was highlighted concisely in one interview with a participant who discussed predators on the prairie landscape:

*We have entirely changed the landscape of what wild means. Converting grassland prairies to agriculture land for example. There’s been winners and losers, which has entirely altered the wild populations. We always talk about this in our little duck world. We’ve altered the predator community completely compared to what used to be in the prairies. There used to be Plains Grizzly Bears, wolves, Swift Fox and all manners of things. And now, we got rid of the apex predators completely. So now you’ve got a bunch of small meso-sized predators, say for example, raccoons, moving up. And so, if you’re a ground nesting bird of any kind, that means you’re in a heap of trouble.*

Concern about the framework in this regard stemmed from the need to account for change over time, as one participant captured: "...our systems are dynamic and we're trying to pigeonhole them in one point in time and use that as our reference without much consideration of this being a dynamic system." This surfaced on scales both looking forward and backwards in time as noted in the following example: "in Manitoba, given you were under a kilometer of ice 10,000 years ago, everything's invasive."

There was also consideration given by some participants to the unit being measured. Specifically, there was issue taken with the notion of evaluating wildness on a species level. It was stated that "species is a very artificial construct that we humans think we find convenient ... but it misses the whole conservation purpose and context." There was hesitation over using the framework to define the qualities of a species and then applying that framework in a conservation setting.

Conversely, multiple participants noted the importance of species classification for government management and conservation purposes. A specific example was given where the participant was working on an infrastructure project where they encountered a hybrid species. Upon investigation, it was dictated by the jurisdiction that the hybrid was not listed as a species and therefore was not protected by the province's Wildlife Act, and there was no obligation to manage it. The infrastructure project was able to move forward with little consideration given to the hybrid species. Another participant stated that "the government will use a population or animal not being listed as a reason not to manage it."

At the end of a particularly detailed interview, the interviewee placed their glasses down, rubbed their eyes and stated:

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*"It's a sad world if we have to define wild on the basis of what humans have done or have not done to these animals."*

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### 5.1.3 Framework Structure

One participant suggested that among other outcomes, the framework must include multiple designations for wildlife, such as, “free ranging” and “captive.” It was suggested that the need to include a category for captive wildlife stemmed from the fact that we do not want an animal in captivity to immediately be considered not wild/domesticated due to its confinement. The participant stated that we want the jurisdiction’s Wildlife Act to apply to the population/individual for as long as it can, as it is often the best method to protect a species.

Several comments and new ideas regarding the structure and design of the framework surfaced during the interviews. Generally, the linear progression of the current model, with a requirement to satisfy parameter one before moving chronologically down to two, and so forth was not favoured. There was expressed concern that a population could be pigeonholed to one side or the other based off one parameter. Other models were suggested to avoid this, with an option to circle back to a previous parameter. The following suggestions were made:

- **Decision tree** - if this then yes, if that then no
- **A map with considerations** for wildness - origin of the species, genetics, geography, level of management purpose
- **A physical map** - Overlaying a variation of the framework against provincial decisions showing which jurisdictions favour which parameters
- **Flow Chart** - with circle back options

It was suggested by some participants that a restructuring of the framework may also assist with organizing principles. That comment was grounded in the belief that the framework needed a stronger narrative to carry the message of conservation. It was suggested not to add any more parameters, but instead to organize and condense the existing parameters. Another participant suggested that a categorical division between biological parameters and management parameters would assist with the flow.

The idea of having primary and secondary parameters in the framework surfaced many times during interviews. Some felt that it made sense to only require the primary parameters, and

a fraction of the secondary parameters to be satisfied, to be designated as wild. A suggestion made regarding which parameters would be primary versus secondary stated; “I suspect sort of inherently our own values and our own experiences are going to probably put weight on certain parameters more than others.” This indicates that the distinction between primary versus secondary parameters would be a human value proposition. This statement lends itself to another participant’s comment that my project seemed to raise more philosophical questions than biological ones.

It was noted that with a conceptual framework, the devil is in the design details and nothing can be left to obscurity, as details will be forced to be considered as the framework is used. In general, given that the breadth of the topic is sprawling, creating a framework may “invite people to say, ‘well yes, but you didn’t consider...’ and they’ll come up with some migratory bird or some local lake trout issue or something else.”

#### 5.1.4 Framework Utility

The two interview questions of “have you ran into this problem before,” and “would a framework like this be useful,” were combined during my analysis in the theme of ‘Framework Utility’. Interviews revealed that most participants had ran into this question of wildness, and all of them except for one, suggested that a framework would be useful. There was a significant variation in experiences where participants had encountered the question of wildness. Interview participants provided several examples of where they had encountered the question of wildness, as follows.

- The consideration of invasive wild boar in a Canadian province was provided as an interesting example of wildness. It was revealed in an interview that efforts are currently underway to have farmed wild boar classified as wildlife as soon as they escape their enclosure in this jurisdiction. According to the interviewee, this would allow the province to immediately act and begin culling them. This raised the question of the legal classification of feral wild boar, which is currently being reviewed by the province’s legal department.

- Another experience that surfaced is how provincial jurisdictions are grappling with wildness regarding exotic pets and farm animal requests. It was articulated as; “do we need to issue a permit for this? Does this fall under our jurisdiction? Do we care?”
- Provincial jurisdiction representatives expressed the challenge of determining wildness arising from efforts to stop the commercial farming of native species in the form of hunting preserves.
- Another concern surfaced over “kick and shoot” domestic water fowl and game bird operations and their effects on hunting seasons. This was articulated as situations where domestic animals raised on shooting farms escape into the wild and are then harvested by hunters. Although it was articulated that the participant did not directly experience this problem in his Canadian jurisdiction, he stated that they encounter it in the USA. He verbalized the following questions: “do these domestics count towards a hunter’s limit? What if the domestics hybridize with “wild” animals?”
- Synthetic biology surfaced as an example through the following quote: “So here’s where it’s going to play out; you know about the black-footed ferret story? So, I don’t think this is going to happen, but it could, that the work that is being done by Revive and Restore and his colleagues to create a version, a genetic sequence that allows wild black-footed ferrets to be immune to distemper. And that is put into the black-footed genome, but it’s been patented. So what is that? Wild, black footed ferret running through a Prairie dog colony with a patented genetic sequence in it.”
- On the conservation enforcement side, the issue of wildness was raised when a bison was discovered wreaking havoc in a provincial park, in a jurisdiction where bison are not considered wildlife. Officers initially moved to euthanize the animal, but then had to reconsider if they had the authority to do so, due the animal not being classified as a wild animal. The animal was ultimately euthanized under the officers’ authority to dispatch dangerous domestic animals in a provincial park. This created a situation where officers were forced to standby while legal status and possible actions were determined.
- Two participants noted their experience educating about wildness, through the following quotes: “...and so thinking about this need for a framework, not only does it influence absolutely everything that I'm teaching and will continue to teach, but also, a lot of the decisions that we make are based off a framework that doesn't currently exist.” A



separate interview participant indicated that it is a struggle to attempt to articulate; “what we have from a legal framework perspective” and “... what this messy situation is.”

The wide range of areas that the question of wildness has influenced was both surprising and exciting, as some of these areas were formerly not considered. These new areas revealed that the framework may provide guidance on best practices for addressing the question of wildness across a variety of spectrums. One participant stated that the framework would provide; “a road map of considerations for more holistic wildlife management in Canada.” Another interview participant stated the following regarding the framework’s utility:

*I think this framework is critically important. I think there needs to be a lot of dialogue. This whole discourse needs to be brought to the forefront because we are struggling with this more than ever before. These definitions under the law will determine what is or is not acceptable and will chart the path as we move forward. And we are facing these very difficult questions all the time. And so we need to derive a framework that protects our efforts toward conservation and biodiversity while at the same time provides clarity under the law, upon which we adjust ourselves. So I think this is really, really important. I think why it hasn't been done before is it's intensely complex.*

A Canadian wildlife manager expressed that there would be utility in a framework of generally accepted principles to determine if an animal was wild or not. They stated that regardless of whether the framework is enshrined in law, it would be helpful to have principles to reference back to when making decisions. This framework would bolster decision making and prevent managers being perceived as making their own ad hoc decisions.

The increasing number of difficult conservation decisions that are being made during the Anthropocene was also referenced in multiple interviews. For example, it was noted that; “we're living in a world where biodiversity challenges are high and they're going to get worse. There is value in the framework from the standpoint of biodiversity and endangered species management.” Participants articulated that this framework could act as an reference for managers

who are in the position to make these difficult decisions, by adding another tool in the toolbox to justify their decisions.

There was particular interest among participants in the results of the jurisdictional scan portion of the research and the idea that there was no universal Canadian answer to the question of how to determine what is wild. The following captures this sentiment:

*You're showing the importance of the different interpretations that have been provided in the context of what is wild. That's really important because why one province decided this and one province decided that... I mean, there may be reasons or you may never be able to find them, but it will cause people to be curious and to realize that there is not going to be a single federal answer. Including the results of that kind of a scan would be super useful.*

When discussing project utility there was concern articulated regarding the project reflecting a concept which is not currently seen and used in Canadian wildlife law, that being the concept of wildness. This was articulated as; "...to characterize this unit or population, then determine that we ought to manage it in some kind of special way... I just don't see wildlife legislation in Canada, at this point, reflecting that concept."

#### 5.1.5 Views on the Courts

*"I mean, do you really want to include a category just because one poor monkey wearing a coat went into an IKEA?" – interview participant*

The question of whether or not to include the courts understanding of wildness elicited mixed input but incorporating it in some way was typically favoured. It was noted by three participants that the courts will simply reflect their interpretation of an Act, and the Act is what comes from government. It was stated that "all the courts do is reflect contemporary mindsets," and that this is already reflected in historical wildlife legislation in Canada. The historical legislation in question is the transition through wildlife management eras and the court's role in bolstering those. Predator bounties were provided as an example. Interestingly, it was noted in an interview with a government official that while the courts reflect the Act that is the will of

government, government itself may reflect the will of interest groups or whoever has the most access to the Minister of the day.

What the court's understanding of wildness was based on was raised in multiple interviews. For example, one interviewee said that the court's understanding of wildness was "...based on perception, not on scientific fact per say." It was stated that while the court's understanding is an important consideration, it's not fuelled by current research and scientific understanding. In other words, "... in my mind, we cannot position a definition of wild based on liability because then of course, we're going to have species that will be subject to depletion faster than others." This liability comment is in reference to the court's reliance on ancient game law while making modern day decisions that influence wildlife conservation. Following this, it was suggested that the court's interpretation should be a consideration, but not necessarily a primary parameter.

Despite the previous perspectives, there were also adamant voices for the inclusion of the interpretation from the courts. For example, one interviewee stated that:

*It would be short-sighted not to look at legal precedent to see the parameters the courts consider and the legal tests that have been used, because often that's how legislative sections are developed... they take the test the court has created, and then they drop it into a piece of legislation to make it a bit more enforceable and have more parameters around it.*

#### 5.1.6 The Role of Commercial Interests

Discussion about commercial interest involvement in wildness was framed through the question "Do you think wildlife privatization and the legal ownership of an animal should influence its wild status?" This question stimulated interesting points, specifically from government biologists. Game farms and their pressure on reclassifying animals came up in numerous interviews along with the need for the framework to consider privatization and property rights. One interview participant stated: "Privatization effects every parameter of the framework."

There were both very specific examples and general statements provided regarding the commercialization of wildlife and its effect on wildness. Game ranching in the form of cervid farming and the effect on a particular Wildlife Department arose as a specific point of tension. It was revealed in an interview that in one Canadian jurisdiction, farmed cervids are regulated under the Wildlife Act, but the responsibility of management is delegated to the Agriculture Department. How the cervids are managed has direct implications on wild populations through biosecurity and disease management, specifically CWD control. Therefore, to address conservation concerns, the Wildlife Department has to work cooperatively with the Agriculture Department. This directly impacts wildness as it was articulated that “the wildlife branch does not want to give any leeway on the interpretation of wild elk here.” They want farmed elk to be considered wild and managed under the Wildlife Act, so they have influence and jurisdiction to manage.

Similar tensions between game farmers and wildlife departments in the USA were also highlighted. “.. State by state in the USA they've grappled with CWD. There are some states where they saw interests that were making a lot of money off of farmed cervids and they didn't like the fact that Game Departments were pointing the finger at them and saying [that] this is a threat to wild populations and we need to get rid of them. So their answer was to have the legislatures of those states re-classify farmed deer as livestock... a good example of abuse of power.” The tension between commercial game farming operations and wildlife departments across North America is also reflected in the literature and recent court proceedings (Aune and Wallen, 2010; Dowel, 2019; Geist *et al.*, 2017).

One example was given where a Canadian jurisdiction was attempting to address invasive species in the form of exotic pets and ranching through their Biodiversity Act. During the consultation period they received feedback from stakeholders that essentially amounted to “... don't tell me what to do with my property.” This was articulated as another clear example of the importance of privatization and property rights in the discussion around wildness.

Discussion around the push to further commercialize and privatize wildlife surfaced in multiple interviews. It was noted that the current legal system around wildlife views wildlife as a

commodity; once you kill it, it is yours. The North American Model of Wildlife Conservation, a set of principles that are loosely followed in the USA and Canada, frames hunting as a way of protecting species; kill them to save them. It was revealed through interviews that the game farmers have begun using parallel arguments about privatization saving wildlife, using bison as their case and point example. This was articulated in the following quote:

*There are people that say some endangered species wouldn't be endangered if we allowed them to be in captivity. Make them less wild and they will be valued and won't disappear. People say that's bologna, but there's a push for that. There was a guy in Australia talking about that same thing- [that] the thylacinid wouldn't be extinct if we allowed it to be put in captivity and breed as a product. But that gets into wildlife and what is the use of it and why it's valued.*

The interview responses revealed the need for legal ownership and property rights to be considered in the design of the framework. Direct tension between wildness and commercialization was revealed, with indication that as conservation challenges continue to increase, privatization efforts may also rise.

## 5.2 Interviewee Thoughts on Parameters for Determining Wildness

During interviews, participants were asked if they thought the existing framework parameters made sense and if they felt any parameters were missing. This created the space for conversation around specific parameters and comments regarding the framework in general.

It was asserted by participants that every parameter listed in my framework has complicated literature. They suggested that to err on one side of a parameter as opposed to another would require explanation. This was expressed through the following interview quote:

*I highlighted 1, 2, 3, 4, 5, 6, 7, 8 different things in this framework that I think are, uh, you know... the critical word is problematic, but the real question point is, **you have chosen a given position and you could have chosen any one of 10 other positions and people who read this like me are going say,***

*well, why? So let's take the first one, the native to jurisdiction or present in jurisdiction for at least 50 years. Why?*

This quote articulates the nuanced nature of the project and difficulty in designing a framework that is applicable across time and space. Not only does every parameter have its own body of literature, but some of that literature is contradicting or still evolving. For example, intentional hybridization for the sake of conservation is now emerging in the literature around genetic distinction (Chan et al., 2019; Redford & Adams, 2021). Interview comments on particular parameters are included below and analysed in the discussion portion of this chapter.

### 5.2.1 Inclusion

It was revealed in the jurisdictional scan that the definition of wildlife varied drastically between jurisdictions. Some jurisdictions specified that only vertebrates were included in their interpretation of wildlife, while others went as far as all “wild mammals, birds, reptiles, amphibians, fish, invertebrates, plants, fungi, algae, bacteria and other wild organisms.” Various combinations of these categories were seen across the country, although including only vertebrates was the most common. This fostered the interview question of “Do you think fish, plants and organisms other than animals should be included as a parameter of wildness?” During the interviews, this question was routinely interpreted as “Do you think fish, plants, and organisms other than animals should be included in the *definition of wildlife*.” This is how I chose to portray the results of this question, as every interview participant discussed it in these terms.

The issue of which categories were included in the definition of wildlife elicited strong opinions from interview participants. Those who believed in broad inclusion tended to feel strongly in their beliefs, while the objections to broad inclusion were for “practical, not philosophical reasons.”

There was objection to the inclusion of categories such as fish, plants, invertebrates, fungi, algae, and bacteria from participants who came from all facets of conservation experience. This objection was overwhelmingly rooted in administrative difficulties with various categories

being interpreted differently under Canadian law and the “practical legal challenges [related to] including them.” Legal property rights regarding plants was brought up three times, summarized as follows: “property rights in plants aren’t vested in the crown in the same way that animal wildlife is. Animal wildlife belongs to the crown, whereas, plants, even if they are listed, belong to the landholder, despite the landholder not being able to touch or remove them.” White orchids in Manitoba were brought up as an example plant that can be privately owned, but because they’re listed by the jurisdictional government, the owners still cannot remove or touch them. It was noted that this is in contrast to animals, where the crown typically has vested ownership rights through the jurisdiction’s Wildlife Act. One interview participant also suggested abiding by the lines of flora and fauna as a reason for not including plants in the definition of wildlife.

In reference to the inclusion of fish, a participant stated that; “aquaculture is a very messy business that Canada is just trying to figure out now.” It was also noted that different departments often hold different management responsibilities. For example, in Manitoba, wildlife and fisheries management are separate. It was noted that although this separation of departments exists, it is not necessarily best practice to manage ecosystems as separate components as opposed to holistically.

Some also felt it was more practical to focus on animals and not complicate the framework further for the purposes of a Master’s Degree. In the words of one interviewee:

*Don’t [include other species than mammals], and my reason is more pragmatic than philosophical. The project is complicated enough without including fish, plants, and other organisms. The legal framework, for fish at least, and possibly plants, is different. You’re trying to get a master’s degree, not your life’s work. There’s lots of meat for the mill without complicating it even further. Practically, you’re also not going to find much literature or case law involving those things either. Need to show that it’s helpful for one group, then later in your career, come back and think about the bugs.*

Conversely, many participants advocated for the widest inclusion of species as a best practice for the framework. This sentiment was rooted in an overarching concern for ecosystem

protection achieved through a holistic conservation approach. One participant provided an interesting historical commentary on the reason why some jurisdiction's definitions are narrow in scope:

*There's no biological reason [not to include fish, plants and other organisms]. It's historical. Why is it that way? Because historically when people considered why do we need wildlife laws, it was because the resources were being over harvested. So, deer, elk, moose, turkeys, and everything were being over harvested. And in order to stop that over harvest, they had to regulate it, and therefore they got wildlife laws. Everything else was assumed to be okay with the exception of, of course, shorebirds and wading birds, which were heavily exploited for the plume industry. So they were regulated too, but everything else could take care of itself, no harm done. And then when the stressors on populations and ecosystems changed from hunting as the primary or only one, to the degradation of ecosystems, that's when everything else kind of popped up as needing conservation attention. With new biodiversity acts and endangered species acts, there's an expansion of the mandate towards non-game.*

Multiple participants advocated for a broad inclusion in the definition of wildlife, with one quote reading; "... I'm finding it very hard to exclude anything from the definition of wildlife." Participants discussed the complex makeup of ecosystems and the necessity of including a range of organisms when making conservation and management decisions. It was noted that inconsistencies in provincial definitions are not unusual, but for the purpose of making better conservation decisions, the definitions "need to be broader." The importance of having a broad understanding of wildlife was illustrated well by one participant who stated:

*Does including plants have bearing in any of the conservation issues we are looking to address through this framework? Yes. Other management options are constrained if we only begin looking at a species when it's through the Endangered Species Act; once it's already in the emergency room. If plants are considered wildlife, we are able to address them through Wildlife Acts,*



*allowing more proactive management options, before the Endangered Species Act kicks in.*

Interview results from the question of inclusion highlighted the lack of a biological reason not to have a broad, encompassing definition of wildlife, while simultaneously drawing attention to the potential administrative challenges. When interviewing a government biologist from a jurisdiction that already has an expansive definition of wildlife, they stated “why wouldn’t you? You have no reason not to,” insinuating that broad inclusion was an obvious decision.

### 5.2.2 Native to Jurisdiction

Most interviewees described the concept of native species to be problematic both scientifically and ethically. Three fundamental concerns about the understanding of the parameter “native to jurisdiction” were identified through interviews: (1) which timeframe would be considered, (2) which physical boundaries/jurisdiction would be considered, and (3) how would the parameter adapt to the dynamic nature of our climate. Overall, the interviews revealed perceived flaws in the application of the commonly used parameter “native to jurisdiction,” as outlined in this section.

It was noted by many participants that time in a jurisdiction is relative to the species in question. A specific year benchmark is arbitrary when some species do not reproduce until 25 years into their maturity, while other species will go through dozens of generations in that same timeframe. Evolution takes place through reproduction and the resulting influence of natural selection on genetic variation (Redford and Adams, 2021). Therefore, the faster the generation time (the faster the species reproduces), the quicker the evolutionary process takes place. Generation time varies drastically between species with some forms of microbes having a generation time of minutes, while other species take years to reach sexual maturity (Redford and Adams, 2021). For this reason, time in a jurisdiction is only relevant when put in the context of the reproductive nature of a species and the generational capacity within a given timeframe. One interviewee stated that “it is very dangerous to put an exact number there...” in reference to a year benchmark that makes a species native.

It was suggested that “native to jurisdiction” should be replaced with “generations in a jurisdiction.” This would account for the generational difference between species in relation to their time in a jurisdiction. Furthermore, another interviewee asked: “where did 50 years come from and what significance does it have? It’s an arbitrary baseline by whatever publication was done in the 40’s by some naturalist. This was back when no one knew about climate change.” Quotes like this surfaced in nearly every interview. It was also noted that some invasive species have been around longer than 50 years, leading them to question whether that would make them “native to jurisdiction” now. Aside from a single interview participant, every interviewee took issue with the 50-year benchmark for a species being native to jurisdiction.

The understanding of the word jurisdiction was also brought into question, as reflected in the following statement: “What’s the metric here? Political jurisdiction, biome, eco tone, etc.” A specific problem presented in this regard was that if the whitetail deer home range in Manitoba moved north into the subarctic due the human induced climate change, would it still be considered a native species in the political boundary, but foreign/invasive in the biome?

It was suggested that the native to jurisdiction parameter, especially the ‘expanded home range without human interference’ part, is complicated by the dynamic climatic system we are experiencing and that many of the presumed native species in jurisdictions became naturalized because of human modifications to the landscape. It was noted that the climate is a dynamic system and with that you have species that ebb and flow; extirpations with species that return in varying intervals. The following two examples were provided by interviewees: wolves returning to Alberta parks in 1986 and racoons in Manitoba. It was stated that “if questioned if racoons are native to Manitoba, one would not receive a clear answer. They weren’t in the jurisdiction prior to 1950 but may have been in Manitoba back in the 1800s.” Grizzly bears in Manitoba was another example provided during interviews of an extirpated species that is now returning. In reference to a recent publication, one interview participant noted that over long periods it becomes both more difficult and less useful to identify a baseline year in which to consider a species “native.”

Overall, the interviewees suggested that when it comes to defining wildness we should be less concerned with native, non-native, natural hybridization, animal movement, etc., and more concerned with human interventions such as captivity to determine if a population is wild or not. In one interview it was explained that in their jurisdiction, they tailored the definition of wildlife to include both native and invasive species because they believed this provided the best basis for conservation decisions. They stated that for the purposes of import and export permits, by including invasive species they're not promoting trade that is potentially harmful in other jurisdictions. Similarly, under the theme of another question, an official from a different jurisdiction noted that conservation decisions are easier to make when the species is considered wildlife and therefore, under their jurisdiction.

The question of native versus naturalized was brought up in three interviews. Naturalized was described by a participant as; "it's not native, but now it's present, functioning, and self-sustaining. With naturalized species, it's all about human judgement." It was suggested that a species is typically classified as invasive when it's harmful and therefore there is a human value judgement made that it is bad. Naturalized is also not native, but there is no human value judgement made that says the species is bad. It was suggested by one participant that this should be the metric used for conservation decisions: "To me, it's not wild versus native, because then we get into the messiness of when do we call it native. I think what we're getting at is when it starts to [mess things] up for the system and the system starts to break. Then we go in and start pulling things out."

### 5.2.3 Genetically Distinct

The parameter of genetic distinction raised considerable concern and numerous questions among interview participants. The primary concern expressed by participants was the ability for this parameter to exclude vast numbers of species that are still deserving of protection and conservation measures. The second concern that surfaced with genetic distinction was simply "why do we care?" These concerns are discussed further in this section in addition to hybrid animals, which also produced commentary relevant to this parameter.

Multiple interviews produced statements along the lines of “genetic purity is a dangerous concept because it would leave very few organisms with protections.” It was questioned multiple times what the term “genetically pure” means and what benchmark would be used. With extensive human management and the unintended influences of climate change, the following concern also surfaced: “there is so much shifting with their genetics, that is not of their own making.” The complication of genetic purity was quoted as being both “convoluted” and “nonsensical,” with no universally agreed upon parameter for genetically distinct or discrete because they are both made from human value judgements. It was noted that the complication of this topic will continue to increase as genome mapping progresses in the future. It was stated that while there is no “*scientific*” answer for what is genetically distinct or discrete, there is a management answer when someone says: “this is the percentage we’re going to accept ... but this percentage will be argued about endlessly.”

The question of ‘why do we care’ about genetic purity surfaced in many interviews, with Plains Bison being a primary example. An example was given regarding concern over cattle integration in Plains Bison and the resulting bison geneticists who were hired to determine purity. An interview participant provided the following quote:

*...the group of bison geneticists who ended up saying, to my surprise, ‘we don't actually care. If you can find evidence of cattle introgression that appears to be impacting the ways that bison behave, then we'll reevaluate.’ Just saying we can find cattle genes, we do not care about that. It doesn't mean anything in a management context. It's not a purity competition.*

Regarding bison, another interviewee stated, “who cares about things that don't have to do with the functional parts of being a bison? Why would we care about it?”

The fear of hybrid individuals and populations being excluded from protection due to the genetic distinction parameter was a common theme that emerged from the interviews. This indicates that participants who raised the concern believe that hybrids are deserving of conservation protections. Caribou in Manitoba were one example used to illustrate this: “What proportion of the genome do they need to share, or not to share, to be considered distinct. For

example, Manitoba and Ontario have two caribou ecotypes; one migratory, one not migratory, and genetic connectedness is a major consideration for their management.” This management concern over hybrid caribou materialized in one interviewee’s experiences while working on an infrastructure project. The project crossed paths with caribou of unknown genetic makeup, which temporarily halted the project. The jurisdiction where the project was located determined the caribou were hybrids and did not have the legal status or protection of their “genetically pure” relatives. Subsequently, the project continued with little regard for the caribou.

#### 5.2.4 Generations in Captivity

Similar to genetic distinction, interviewees expressed concerns about generations in captivity being the benchmark for domestication and the line between wild and domestic. It was suggested to find the genetic break point, past which you are not able to call the animal wild any longer. For example, it was noted that putting a whitetail deer behind a fence does not take away its wildness, but eventually, one of the subsequent captive generations may not be wild. This domestication process may happen when the population is no longer able to survive free-ranging without human intervention. It was stated that “there will be a point at which, so many offspring away from a wild ancestor, domestication onsets.” This benchmark would need to be further flushed out and combined with other parameters of wildness, as there are countless species that are conservation dependant for survival.

The “UC Davis sheep study” was used as an example of the domestication process by one participant. They indicated that this study demonstrated the physiological, biological, and behavioural change that occurs in captivity. In the study, captive reared sheep were penned with free ranging sheep, resulting in the free ranging sheep all dying of disease. The captive reared sheep were not affected by the diseases that killed the free ranging sheep, demonstrating the impacts of time in captivity and degree of management. It was noted that the concern is not necessarily around the specific generation in captivity, but the resulting biological and physiological changes in the population.

Interviews discussing generations in captivity highlighted that the lack of natural selection, and the presumed selective breeding, may also have an important impact. Participants

went on to say that the process of genetic change through selective breeding and captivity would happen quicker for species who have a shorter time to sexual maturity and a larger number of offspring. Overall, similar to the discussions outlined in Section 5.2.3, the following general questions were raised: “after how many generations does a population become genetically distinct and the onset of domestication begins to occur? After what period of time, or how many generations, does the population become genetically distinct?”

#### 5.2.5 Geographically Distinct

The parameter of *geographically distinct from populations managed for purposes other than conservation* elicited responses related to the general geography of species and how this has been influenced by human activity. The following statement was made by one participant: “climate change is tied into humans and therefore humans are an indirect cause of species changes. You can make that case for Eastern coyote. We wiped out the native wolf, created a vacuum for a large predator and it got filled.” Mallard ducks on the coasts were used as another example of species movement due to human landscape change. Possums moving naturally into Manitoba with increased temperatures caused by human induced climate change was also referenced.

#### 5.2.6 Degree of Management

The degree of management parameter was generally accepted, with the notion that the framework needs to take into account all degrees of management from free ranging to captive populations. In addition, it was stated that animal populations have been managed for history enteral and the degree of management, and the relevance of this parameter, is likely going to increase in the Anthropocene. There was interview participants who suggested “I'm not sure we can say there's any population that's not managed anymore.” The example accompanying this statement this was how even free ranging wild populations are typically managed for both hunting purposes and Indigenous food security.

Discussions around the degree of management lead to an interesting Canadian example regarding captive breeding of mallard ducks. An interview participant explained that at-risk wild duck eggs, which would otherwise likely have been crushed, were brought to a conservation organization's facility where they were hatched and used to establish a breeding duck population.

There was approximately a thousand first generation mallard ducks that then selected their own mates and had second generation ducklings. The second generation was then released into the wild, away from the captive breeding facility. The following statement was made; “shockingly, or maybe not, they were unfit for the nasty real world that was out there. They lost their wildness at a rapid pace as far as the ability to survive when it came to predators.” Ultimately, the return rate on these ducks was less than 5%, significantly lower than the average for wild mallards.

It was noted that captive breeding with other species does work. “Mallards it did not work with, but things like Trumpeter Swans and Whooping Cranes... I mean, we're there, right? We're doing it.” However, the extreme management efforts needed to captive rear wild animals were highlighted. For example, high degrees of management are needed to successfully raise Whooping Cranes, including using ultra-light planes to fly with animals along their traditional migration routes.

#### 5.2.7 Purpose of Population

The parameter of purpose of a population was derived from the COSEWIC’s understanding of “wild by nature.” It is understood as either a population that will contribute to the wild population, or one established for purposes other than conservation (COSEWIC, 2018). Using the purpose of population as a parameter in the understanding of wildness was described by participants as being a “complicated parameter.” They questioned, for example, “who gets to decide what the purpose of a population is?”

One participant expressed that thinking from an indigenous, environmentalist perspective compared to a natural resources development perspective may result in very different ideas on the purpose of a population. One participant suggested that incorporating the animal rights perspective would mean considering that humans should not be determining an animal’s right to exist or their purpose at all. It was noted that this parameter would be highly influenced by human values and may be used for anti-conservation purposes.

Some interviewees noted that even free ranging populations of animals typically have a purpose and are managed accordingly. For example, how moose are managed in the northern

portions of some of the provinces for Indigenous food security. Economic security through trapping and furbearer management was also highlighted. There was an strong emphasis among participants that it is not only captive populations that have a purpose.

The effects of the various purposes of a population on genetic variation were also highlighted. It was suggested that if the purpose of the population is for commercial, captive breeding, free ranging food security, etc., this will have genetic implications. “Industry breeds for what they want, larger animals with certain characteristics, [and] captive breeding favours individuals that do better in captivity, etc. This works to create genetic distinction.”

### 5.3 Interviewee Thoughts on Missing Parameters

Two parameters that the interview participants believed were missing from the framework were (1) ownership and (2) the ecological role and ecosystem destruction. These suggestions are documented below.

#### 5.3.1 Ownership

Three interviewees mentioned the parameter of ownership as being important to consider. It was stated that this parameter revolves around a system of property rights, which some jurisdictions are already incorporating into their understanding of wildness. The complication with including ownership surfaces when we extrapolate the framework outside of the USA and Canada, and the North American Model of Wildlife Conservation. For example, landowners in much of Europe “own” the wildlife on their property, significantly complicating this parameter on an international scale.

#### 5.3.2 Ecological Role and Ecosystem Destruction

The importance of a population’s role in the ecosystem arose in the majority of interviews. It was often simultaneously noted that destruction within an ecosystem is a human value judgement that changes over spatial and temporal frames.

It was suggested that a primary parameter should factor in if the population is destructive to the ecosystem. The idea behind this sentiment was that we generally know that native species



do not destroy their home range, although this is not necessarily always true such as with Snow Geese in the Canadian Arctic. Regardless, it was explained that “it's not about native versus non-native though. It's the wrong language. It's about damage versus no damage.” The suggestion was to frame a parameter in a way that evaluates if the population has pushed ecological processes in a way that changes a steady, stable system, into a state that's undesirable.

It was simultaneously stated by many participants that damage is a human value not an objective ecological process. Wolves in North America were used as an example by a participant of how human perceptions and value change over time. They noted that bounties on wolves are currently still used while there's simultaneously social movements that highly value these predators for their role in the ecosystem. It was noted that many predators follow this trajectory in human value judgements: “we inherently assign value to wildlife, whether it be monetary, ecosystem services, or cultural significance.”

Interestingly, even though damage to an ecosystem was specifically acknowledged as being a human value judgement that is variable over time, the importance of considering it was emphasized. The following quote highlights this conundrum: “social attitudes towards wildlife will factor into management whether biologists want it to or not.”

In regard to the social values aspect, it was noted that everyone's perception of a species is going to be different. Species that have a negative impact on livelihoods and economy will normally be considered invasive or non-native, due to their adverse effects. Conversely, species that are invasive but don't have a perceived large ecological impact “slip under the radar more easily.” Non-native trout used for sport fishing versus the invasive carp was an example provided in a Manitoba context.

#### 5.4 Summary

The project concept largely received positive feedback from the interviewed experts, emphasizing the importance of the project. Overall, the interviews provided valuable insight towards project validity, design, and parameters. The difficulty in creating a framework that produces absolute statements of “yes, this population is wild,” or “no, this population is not

wild,” was highlighted in every interview. There was also an emphasis on the framework being rooted in biodiversity and ecosystem function and to err on the side of conservation. The importance of the framework being applicable across space and time, and not simply a reflection of one point in evolutionary history, was also emphasized. Comments on framework structure, specific wildness parameters that have been modified as a result of the interviews are summarized below.

Interviews routinely had an interesting dynamic where the participant expressed how difficult the project is while simultaneously emphasizing the need for the project. The need for the project was revealed as new and surprising ways that the question of wildness surfaced in participants’ experiences. The need for a more concrete understanding of wild versus domestic was clearly demonstrated. As conservation challenges continue to deepen and management efforts are amplified, I believe that the need for a framework to determine wildness will become further realized.

During interviews there was some confusion regarding the units that this framework evaluated. The framework does not determine if an entire species is wild or not, but instead individuals and specific populations. For example, the framework would not be used to determine if Polar Bears are wild in Manitoba, but instead, to determine if Polar Bears taken from Churchill as a cub and captive raised in a zoo are wild or not. Similarly, the framework would be used to determine if game farmed Mule Deer (*Odocoileus hemionus*), born and raised in captivity are wild, but not the species as a whole in the jurisdiction. The framework may be applied to a pet monkey wearing a coat, but not the entire species of monkey in the jurisdiction. The confusion that surfaced in interviews highlighted the need to clarify the unit being evaluated within the framework.

#### 5.4.1 Framework Structure

Proposed improvements for the structure of the framework surfaced in multiple interviews. There was specific concern regarding the chronological nature of the framework, with the requirement to satisfy one parameter before moving on to the next. The suggestion to reconstruct the framework towards a map of considerations around possible outcomes was a key

takeaway from the interviews. A restructured framework, as proposed in Chapter 6, clearly lays out the considerations from several perspectives, including management, biology, human value factor and the law.

The notion of the court's interpretation of wildness had an interesting divide between government and NGO biologists, and academics and lawyers. Typically, the academics and lawyers confidently said the court's interpretation should be included, whereas government and NGO biologists were much more hesitant. Whether this hesitancy towards the court's interpretation being included was an active understanding on their significance on this topic and the caution that should be used when making a scientific framework, or a dissonance with lack of importance is an interesting question for future research. Regardless, a restructured map framework provides the opportunity to include the court's understanding of wildness categorized separately from potentially competing biological and management considerations.

During the interviews there was a comment made stating that legislation is not typically articulated to differentiate directly between wild and domestic. That feature appears to be exactly what causes the discrepancies between classifications among various jurisdictions. The literature review, which is now supported by the interview results, has revealed that the issue of determining what is a wild animal versus a domestic animal has arisen in numerous capacities due to this uncertainty in classification. This comment accentuates the need for a framework to assist in determining a wildness, as legislation typically does not.

#### 5.4.2 Wildness Parameters

The need for the framework to be grounded in ecology, support conservation outcomes, and err on the side of conservation was highlighted throughout the interview process. I believe that the literature review explains what lens of conservation the project is using, and the facets of conservation this project is attempting to address, namely species at risk, captive animals and disease, and privatization. The framework was designed with addressing these categories in mind.

The nuanced and complicated nature of every parameter of the framework was highlighted during interviews. It was emphasized that every parameter could go at least one of two ways, and to err one way opposed to the other will require significant research and explanation. Conversely, the benefit of listing the parameters which are commonly used to understand wildness in Canada without definitively taking a stance on them, was highlighted. A summary of the comments is included below.

Overall, the interviewees communicated a clear need for the framework parameters to contend with changing circumstances. This was articulated specifically as climate change and the resulting geographical population changes, and any genetic changes that may materialize. New forces of selection caused by climate change surfaced as a considerable concern in interviews and one that could influence the framework's validity in the future. This is an important point when considering the parameters of native to jurisdiction and genetic distinction. This point was considered and incorporated into the final framework, as presented in Chapter 6.

The parameter of genetic distinction resulted in strong responses regarding the potential dangers of requiring a species to be genetically pure to be considered wild. This is particularly true when considering adaptive introgression, or deliberate hybridization (Adams & Redford, 2021; vonHoldt et al. 2018). Adaptive introgression is a field stemming out of genome mapping which intentionally hybridizes species to assist them in adapting to rapidly changing environments (Adams & Redford, 2021; vonHoldt et al. 2018).

Not extending conservation protections to hybrids is directly opposed to the emerging voice in favour of hybridization to address conservation challenges of the 21<sup>st</sup> century (Chan et al., 2019; Marris, 2021; Redford & Adams, 2021). The efforts towards hybridization as an adaptive tool in the Anthropocene is captured well in the following quote: "...perceptions of potential risk change significantly when the focus of conservation is on preserving the adaptive potential of a species/population, instead of preserving the species in its original state," (Chan et al., 2019, p.1).

For the framework to be a useful tool in engendering better conservation across spatial and temporal scales, it must account for hybridization. The framework must be able to contend with hybridized species and individuals, whether natural or of human ingenuity, and still support outcomes that bolster conservation decisions. It is suggested by vonHoldt et al., (2018) that a lack of clarity on the legal status of hybrids may hinder conservation efforts and that a legislative review is overdue.

Degree of management was another parameter that had interesting discussion points resulting from the interviews, including a case study example of captive raised ducks that were not able to survive without human management after two generations. This initially brought forward three primary questions in my mind (1) within two generations, did the mallards lose their wildness, (2) are they still wild, albeit a population that no longer knows how to survive without management, and (3) can a wild population not know how to survive? Upon consideration, the importance of including populations even if they are conservation dependant became evident as degree of management continues to increase throughout the Anthropocene (COSEWIC, 2010; Schneider, 2019).

Wildlife in general is experiencing significant population declines and habitat limitations, mostly attributed to anthropogenic sources (Schneider, 2019). Simultaneously, traditionally wild animal populations are being increasingly manipulated by human presence and actions (COSEWIC, 2010). Combined, this may result in significantly more species that are conservation dependant for survival. There is danger in the framework excluding entire species that are conservation dependant as not wild, potentially excluding them from legal protections or population estimates.

Overall, my framework is designed to be a tool towards engendering better conservation in Canada and based on interview results, I believe that means using a comprehensive understanding of wild. Casting a wide net over the understanding of wildness creates the circumstances for more holistic management. This is also in line with the gradual transition into the next wildlife management era in Canada, the Sustainable Wildlife Management Era. Moving

further into the Anthropocene, with new pressures and conservation challenges being revealed, a new, more holistic, ecosystem-based approach is needed to understand wildness.

## Chapter 6: Conclusions

### 6.1 Introduction

There is currently a lack of clarity on what constitutes wildness in Canada. As human manipulation of traditionally wild populations increases, the conceptual understanding of wildness is brought into question. It also seems that the distinction between wild and captive populations will continue to blur as humanity progresses further into the Anthropocene, along with conservation concerns continuing to increase (Redford et al., 2012). In this research I explored the parameters that are commonly used to determine wildness, investigated the jurisdictional definitions of “wildlife” and “game farmed animal,” and established a framework used to understand wildness in Canada. My worldview in undertaking this work was conservationist.

For this research I used a three-pronged approach to collect data; phase one consisted of a jurisdictional scan, case law review, and document analysis. These were then followed by a second phase of research, involving semi-structured interviews. The jurisdictional scan involved evaluating the primary Wildlife Act and Game Farming Act in the ten Canadian provinces, three territories, and the federal government. In these acts I searched for key definitions of “wildlife,” “wildlife species,” “wild by nature,” “exotic wildlife,” and “domestic game farm animal.” These statutory definitions included parameters that the jurisdiction uses to determine if a species is considered wildlife (see *Table 1: Jurisdictional Scan Results*). I also conducted a case law review of sixteen court cases from Canada, the USA, and the UK. This review gave insight into the court’s understanding of a wild animal compared to a domestic animal, and the legal tests that have been historically used to make that determination (see *Table 2: Case Law Review*). Finally, I conducted an ongoing document analysis throughout the duration of the study, searching for academic or grey literature understanding of wildness. The data gathered through these approaches were used to create the initial framework. Semi-structured interviews with experts in the field were then used to further revise the framework.

The conceptual understanding of wildness will continue to transform with increased manipulation of wild populations into the Anthropocene. As new and novel ideas are presented and exercised, traditional ideas of what is “wildlife” will continue to be pressed, as will the

ability of legislator's to keep pace. Affording non-human entities with rights, bioengineering, and momentous conservation measures such as maternity penning, will be among the many novelties challenging our understanding of wildness. Underscoring this, during the course of my research two books were published which loosely covered the topics of wildness (Marris, 2021; Redford & Adams, 2021).

In this chapter I reflect on the purpose and objectives of this project, drawing conclusions based on the data collected for this research. Based on my findings I also present here a revised framework for determining wildness and provide ideas for future research and concluding thoughts.

This research isolated two primary conclusions surrounding the understanding of wildness in Canada that can be summarized as follows:

1. In Canada, there is no universally agreed upon understanding of wildness;
2. Not having a wildlife classification hinders conservation outcomes.

Further discussion of these key conclusions and areas for future research are provided in the following subsections.

## 6.2 No Universally Agreed Upon Understanding of Wildness

The research revealed that that there is currently no universally agreed upon understanding of wildness in Canada. This was revealed specifically through the jurisdictional scan, and emphasized during the case law review. The semi-structured interviews further identified the different perceptions of wildness across Canada, while simultaneously highlighting the various ways the question of wildness arose.

As documented in section 4.3.1 Jurisdictional Scan Results, statutory definitions of wildlife across Canada varied in categorical inclusion, used differing parameters, and were in some cases contradictory in nature. The courts understanding of wildlife, as discussed in section 4.3.2 Case Law Review, further differs from statutory understanding of wildness. The courts



understanding of wildness relies on human value judgements and perceived danger to humankind, and does not provide strict or scientific parameters for determining what is wild.

Differing perceptions of wildness across Canada were also documented during my semi-structured interviews, as noted in section 5.4 of the thesis. Although the interviews were intended to isolate insights on the proposed conceptual framework for determining wildness in Canada, varying perspectives on every parameter used to determine wildness were revealed. The complexity in determining wildness was also highlighted in every interview.

The differences in understanding wildness between the various ways of knowing are underscored by the example of invasive species. The jurisdictional scan revealed that jurisdictions across Canada interpret invasive species differently, with some considering them wildlife, some specifically stating that they are not wildlife, and others being unclear. The semi-structured interviews with wildlife professionals found the majority of participants disagreed with the parameter of needing to be native to a jurisdiction to be considered wildlife, therefore suggesting that invasive species should be considered wildlife. Finally, the case law review noted that the notion of native vs invasive was not considered in the court's determination of a wild vs domestic animal. This serves as one example to highlight the lack of a universal understanding of wildness across Canada.

The lack of a universal understanding of wildness across Canada has resulted in certain species and populations (such as captive) being considered wildlife in one jurisdiction, and not in others. Establishing that there is no universally agreed upon understanding of wildness in Canada is an important first step towards engendering better conservation outcomes, pursuant to the second result, that not having a wildlife classification hinders conservation efforts.

### 6.3 Not Having a Wildlife Classification Hinders Conservation Efforts

When a population does not have a wildlife classification, it is typically interpreted as domesticated, privately owned, or not wildlife. The research revealed that when a population does not have a wildlife classification, it hinders conservation efforts. This is explored below

through the lens of jurisdictional considerations and management tools, invasive species, and disease management.

This study found that when an individual, population, or species is classified as wild that government Wildlife Departments and therefore jurisdictional Wildlife Acts, have an increased authority over the unit in the context of resources management. My research demonstrated that this increased authority can materialize as the ability to implement disease management controls, to euthanize when necessary, and implement other management options. Conversely, when a population is considered domesticated or not wildlife, it is typically not subject to the same management tools, potentially hindering conservation.

One hinderance to conservation was established when an interview participant disclosed their jurisdiction's efforts to classify farmed invasive species (wild pigs/boar) as wildlife, opposed to domesticated. Having these invasive species classified as wild would enable the jurisdiction to cull the animals immediately upon escape from captivity as both a wildlife disease control method and invasive species management. By not classifying the species as domesticated, the jurisdiction would be able to implement management tools to provide a better conservation outcomes, such as culling. It is important to note that within the new framework (established in section 6.4 A Canadian Wildness Framework), the distinction as wild is made regardless of other parameters such as being native to the jurisdiction, degree of management, purpose of population, or generations of captivity, allowing for increased regulatory control and therefore better conservation outcomes.

Another participant highlighted the potential conservation implications of classifying an invasive species as anything other than wildlife, as the wildlife classification creates the conditions the jurisdiction's Wildlife Department needs to regulate exotic animal imports in the context of invasive species management and illegal or unsustainable trade. The example of an exotic pet turtle that posed wildlife disease and invasive species concerns in the jurisdiction was provided. The jurisdiction's courts determined that the turtle was wild and therefore the jurisdiction's Wildlife Department was able to seize the turtle, preventing invasive species and wildlife disease spread. Even though the turtle had a high degree of management as a pet and it

was not native to the jurisdiction, it was in the best interest for conservation outcomes that the turtle was considered wild and not a domesticated pet so conservation tools could be utilized.

Similarly, another example was provided where farmed deer's classification as wildlife gave a jurisdiction's Wildlife Department grounds to work with the Agriculture Department for management purposes. In this example, the Wildlife Department defended the deer's classification as wildlife due to the potential impacts of farmed animals on free ranging populations. If the farmed animals were considered domesticated instead of wildlife, they would not be subject to regulation and oversight from a jurisdiction's Wildlife Department. In practice, farmed deer being considered domesticated and not wild would mean that populations would not be subject to wildlife disease testing, import/export controls, etc. In this context, being classified away from wildlife may translate to the population not being regulated by jurisdiction's Wildlife Department. This in turn may result in hindered conservation efforts.

Similarly, the case law review revealed four court cases in which the ability for conservation tools to be utilized hinged on the interpretation of the population or individual as wildlife. In these cases, if the population or individual would have been classified as domesticated, or another classification away from wildlife, conservation efforts would have been hindered. The results of these legal decisions help to support the research finding that not being classified as wildlife hinders conservation efforts.

Specifically, two court cases in the United States established farmed elk as wildlife not domesticated animals. This allowed the state game department to implement disease management in the form of chronic wasting disease movement controls and contaminated herd culling. These types of administrative controls are critical for wildlife disease management and the protection of free ranging populations.

The other two court cases referenced above determine that removing a free ranging, non-domesticated animal from the wild, typically in the form of capturing an exotic pet, does not remove the animals' wild status. This allowed a provincial wildlife branch to implement disease management controls in the form of culling.

This research determined that not having a wildlife classification hinders conservation efforts. When a population is classified as wildlife, responsibility is typically allocated to jurisdictional Wildlife Departments to address conservation issues before they reach dire conditions. When plants, fish, captives, and hybrids (among others) are not classified as wild and therefor encompassed in a jurisdictions Wildlife Act, it reduces the management options available, hindering conservation efforts.

This research also demonstrated that not having a general understanding of wildness may create lack of transparency and opportunistic behaviour by leveraging gray areas of law. The current “blurred lines and piecemeal approach” potentially creates the conditions for political hubris in favour of commercial interests over conservation measures. This is demonstrated by the still pending decision on listing Plains Bison in Canada.

Eliminating the confusion around classification will reduce the space for non-transparent commercial leveraging, political interference and provide context and clarification for those pursuing wildlife conservation. Wildness clarification will also become increasingly important due to increased use of genetic manipulation within the wildlife field.

While this research revealed that not having a wildlife classification hinders conservation efforts, it did not necessarily determine that being classified as wildlife bolstered conservation prospects. This is attributed to numerous other factors that may trump this categorization, and serves as an area for future research. This is an isolated area for future research discussed in section 6.6. In section 6.4 *A Canadian Wildness Framework*, I propose a first step towards obtaining clarity around the understanding of wildness in Canada.

#### 6.4 A Canadian Wildness Framework

The revised framework is presented in *Figure 11: Canadian Wildness Framework and Supporting Definitions*. This final version of the framework is designed to reflect the research finding that not having a wildlife classification hinders conservation outcomes. This finding is reflected in the framework as populations who have not been through the domestication process

are classified as wildlife, while those who have been through the domestication process are classified as domesticated. This broad understanding of wildness places less of an emphasis on parameters such as captivity, degree of management, viability of population without management, etc., and an increased focus on genetic distinction to the point of domestication. The revised framework also incorporates interview suggestions towards a rethinking of the framework design away from chronological parameters.

The research findings made me re-think my initial approach to the framework that I developed at the outset, which included individual parameters that were meant to be moved through sequentially to determine if a species would be classified as wildlife or not. Interview results shifted my thinking away from the original framework design towards a more integrated and non-linear approach, that translates into a broader understanding of wildness. As a result of my data, I now believe that the best practice for conservation outcomes is to consider all species that have not been through the domestication process as wild, regardless of other parameters such as degree of management, purpose of population, legal ownership, etc. This is based on the research finding that other classifications away from wildlife hinder conservation efforts. In the revised framework, the classification of wild has subcategories of “tame,” “captive,” and “free-ranging,” but these do not negate the underlying status of wild.

I believe that a framework that can parse out the distinction between (1) domesticated, (2) wild – free ranging, (3) wild – captive (4) tame will support conservation outcomes. These distinctions may potentially address existing issues with classifying “wild – captive,” as simply wild, as was revealed with the example of attempting to list Plains Bison in Canada.

The parameters commonly used to determine wildness that were isolated throughout this research are incorporated into the framework as categorized considerations. There are three categories- management, biological, and legal, as discussed in Section 6.5 Commonly Used Parameters. The framework is designed so that these categories are not used to determine wildness, but are instead simply listed for the user to consider as additional factors when applying the tool.

The key parameter in the framework is “domesticated,” presented as the opposite of wild. Domestication surfaced during this research in the semi-structured interviews, being described as “a genetic breakpoint, past which you are not able to call the animal wild any longer.” The concept was illustrated with the example that placing a deer behind a fence and managing it does not necessarily take away its wildness, but it is possible that a certain number of offspring away from a wild ancestor could result in the onset of domestication. It was further noted by an interview participant that domestication would be related to the biological and physiological changes, not specifically to the number of generations in captivity. In fact, literature has indicated that few species have gone through a process of domestication and that a species can live eternally as wild – captive, without ever experiencing domestication (Decory, 2019).

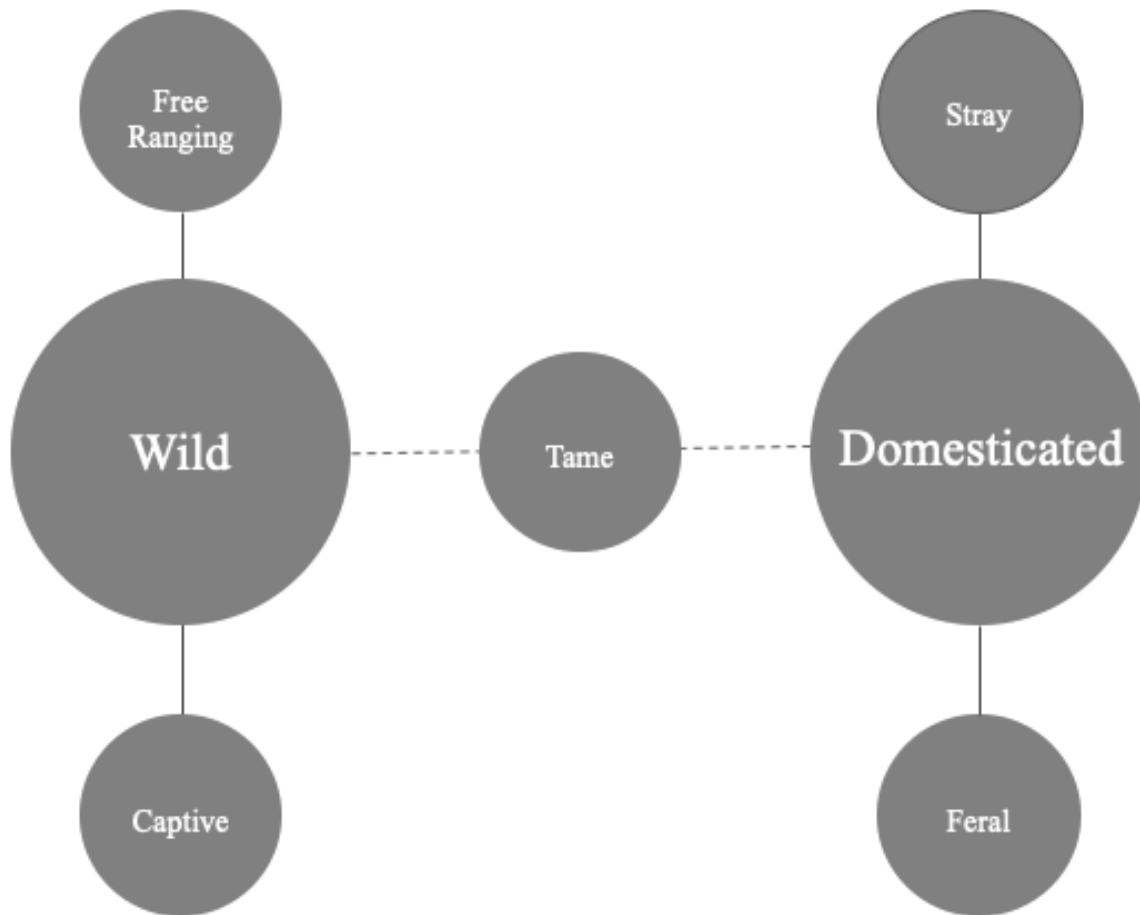
A list was published in 2012 by Dr. J. Clutton-Brock that listed 29 domesticated species, with 18 new taxonomic classifications. Taxonomic complexity contributes to the lack of consensus around domestication and has been described as a dog’s breakfast (Redford & Adams, 2021). In addition, genome mapping is making taxonomic classification more complicated, as genetic distinctions and hybrids are revealed. A recent revision of taxonomy as a result of genome mapping resulted in thousands of “new” species (Simkins et al., 2019) Research currently exists that aims to fill the domestication knowledge gap by creating a framework for determining species domestication. Decory (2019) proposed an assessment tool for domestication, in which eight parameters must be satisfied for a group to be considered domesticated.

The framework I propose below is intended for determining wildness. It proposes a broad understanding of wildness, showing that any population who has not gone through the domestication process is classified as wild. This casts a wide net, funneling species into the wildlife classification and away from other classifications which may hinder conservation efforts. The intent of my framework is to make the distinction of wildness using a broad understanding. The intent of my framework is not, however, to explain the domestication process.

Given the importance of domestication, my Canadian Wildness Framework, as shown in Figure 11, has leveraged recent domestication research by Decory (2019). Decory defines domestication as “a complex and multifactorial phenomenon affecting biological, behavioral and genetic processes ... for several generations,” and explores the cyclical process from wild to domestication (Decory, 2019, p. 48). My framework adopts the language used in Decory’s research.

Within my wildness framework it is possible to move between the categories of wild – captive, wild – free ranging, and tame. Populations and individuals may transition between categories of wild in instances such as captive breeding programs and maternity penning. This feature of the framework allows conservation organizations and regulatory bodies the flexibility needed to make the best conservation decisions for wildlife. The flexibility to move between subcategories within the designation of wild also eliminates the case-by-case evaluation on wild versus domesticated. It is also possible for a population to transition between wild and domesticated, if they have experienced the domestication process.

Figure 11: Canadian Wildness Framework and Supporting Definitions



**Wild** – Any population of mammals, birds, reptiles, amphibians, fish, invertebrates, plants, fungi, algae, bacteria and other organism, excluding humans, that has not gone through the domestication process.

**Wild – Free Ranging** – a wild population that is not physically bound by human captivity.

**Wild – Captive** – a wild population that is physically bound by human captivity.

**Tame** – a wild or domesticated population that is generally dispositioned towards humans.

**Domesticated** – “domestication is a complex and multifactorial phenomenon affecting biological, behavioural and genetic processes in all individuals of this group ... for seven generations,” (Decory, 2019, p. 48).

**Domesticated – Feral** – a population or individual that has gone through the domestication process, is a domesticated species, became free-ranging, and is now surviving autonomously for multiple generations, beginning the process of “de-domestication,” (Decory, 2019).



**Domesticated – Stray** – a population or individual that has gone through the domestication process, is a domesticated species, and has either escaped or was released from captivity. Does not typically survive for multiple generations outside of captivity without human intervention.

## 6.5 Commonly Used Parameters

A jurisdictional scan, case law review, and document analysis was completed in this research to identify parameters that influence perceptions of wildness across Canada. The parameters that this study found to be commonly used for determining wildness can be divided into three reference categories, included in the framework: management, biological and legal. The three categories assist in outlining the nature of the project as not purely a biological study, instead reflecting the intended purpose of designing a framework for use in developing policies aimed at engendering more effective wildlife conservation in Canada.

The parameters for consideration listed in *Table 6: Canadian Wildness Framework – Parameters for Consideration* do not play a role in the determination of wildness, as domestication is the only focal parameter within the framework. Instead, the listed parameters are points of consideration when using the tool. These categories allow the user to understand how wildness is commonly perceived across jurisdictions in Canada and in Canadian courts. These parameters do not necessarily translate to best practices, which is why they are not included in the determination of wildness.

*Table 6: Canadian Wildness Framework - Parameters for Consideration*

Management	Biological	Legal
a. Degree of Management	a. Genetically Distinct	a. Property Right Owner
b. Viability of Population Without Management	b. Geographically Distinct & Hybridization	b. Nature of Species in Question
c. Purpose of Population	c. Native to Jurisdiction	
d. Captivity	d. Damage to Ecosystem	

The framework does not take a particular stance on any of the parameters for consideration, as it was highlighted throughout the research the nuanced literature behind every parameter and the uneven application across Canada. In fact, I found that commonly used parameters vary between sources and jurisdictions. This is particularly true with the statutory

definitions of wildlife and subsequent parameters provided. In some cases, these jurisdictional parameters were not only different in scope, but even contradictory in nature. This created scenarios where a species was considered wildlife in one jurisdiction, but not another. Therefore, this framework simply intends to inform the reader of the parameters important for consideration, without making a determination on them, one way or another.

## 6.6 Future Research

While the research revealed that not having a clear and uniform approach to classifying wild hindered conservation outcomes, additional work needs to be completed to determine if a classification of wild can itself bolsters conservation outcomes. Other factors that influence conservation outcomes needs to be analyzed to determine the exact role that a classification of wild has, while considering other aspects that may influence or trump the designation. This is the next step in determining wildness in Canada.

This study was a first attempt to create a framework for determining wildness in Canada. As such, there is opportunity for additional research to isolate best conservation practices for every parameter listed as a consideration in this study. It was highlighted in the interviews that each parameter has a complicated literature, often with varying findings behind it. I believe this study and initial framework are a starting point for future research to expand on.

Although the constitutionally recognized rights of First Nations, Inuit and Metis People regarding wildlife were largely outside of the scope of this research, they are an area of critical importance. Using a rights-based approach and perspective is an important component to understanding wildness in Canada that should be explored further in the future.

Interestingly, both findings from this research are contingent on wildlife being interpreted and managed as a natural resource. Under the Canadian constitution, wildlife is understood as part of the land, with responsibility being allocated largely to the provincial governments. This results in wildlife being managed as a resource to be owned, harvested, conserved, etc., opposed to autonomous beings with agency. If wildlife was not interpreted and managed as a natural resource, the entire matrix around wildlife and wildlife law would be inherently shifted. The

emerging global trend towards affording non-human entities with rights will be interesting to monitor for effects on Canadian understanding of wildness moving forward.

There are currently efforts underway to create a universally agreed upon framework for domestication. Similar to efforts in this study to understand wildness, this work in understanding domestication is an important step in addressing conservation challenges. Further research and understanding around the domestication process will also impact the proposed framework, which may require modifications in the future to adapt accordingly.

Fisheries and plants were outside the scope of this research, although research into the wildness of these classes will be important to consider in the future. While there is no biological reason not to consider entities from either of these categories as wildlife, there is a distinctly different understanding of the two categories in Canadian law. The privatization and commercialization of fish through aquaculture is an area of particular interest as Canada grapples with the legal and conservation challenges arising from the practice. Understanding these categories and their relationship to wildness may aid conservation efforts moving forward.

As humanity progresses further into the Anthropocene and new initiatives are designed to address impending conservation and climate challenges, understanding around wildlife may fluctuate. This will be an important area to monitor moving forwards, for new ideas and understandings of wildness in Canada.

Directly relevant to this research, but beyond the scope of this study, is the area of genetic manipulation and its relation to wildness and conservation efforts. While genetic manipulation offers potential solutions for conservation challenges such as species at risk and invasive species, it has numerous unknown variables and requires further consideration from a conservation perspective. Further research in this area will be useful in building a basic understanding of wildness and means to enable best practice conservation decisions in the future.

The commercial value of genetically manipulated wildlife can only be realized through the ability to patent and commercialize the outcomes. Canada is currently an outlier in its

inability to patent creations of higher life forms such as genetically manipulated living entities. Several other countries such as the USA, Germany, and Japan all allow for patents on higher life forms. This is an important area for future research and for conservation bodies to monitor moving forwards.

Further analysis of Canadian jurisdiction's Wildlife Acts and their definition of "Wildlife," in relation to conservation decisions would also be an interesting area for future research. Understanding this through the progression into the next wildlife management era and its implications in areas such as species at risk, wildlife disease control, and privatization would be valuable work that may further reveal best practices for conservation outcomes.

#### 6.6.1 Considerations of Privatization

Privatization of wildlife was a prominent theme throughout my study. Whether privatized for commercial interests such as game farming, or for personal pleasure such as exotic pets, privatization routinely surfaced in all my methods of inquiry. It almost exclusively arose in the context of private owners disputing with government Wildlife Departments or animal welfare entities regarding the implementation of conservation tools, as outlined in previous chapters. This study revealed that wildlife privatization directly forces the question of wild versus domesticated, and hinders conservation efforts in the context of wildlife disease management and invasive species controls.

While the revised version of the framework does not use the parameters of consideration to determine wildness, privatization has a significant effect on many of these parameters. In fact, the privatization of wildlife directly forces the question of wildness by influencing multiple parameters including degree of management, viability of population without management, purpose of population, captivity, genetics and generations in captivity, geography, and legal property owner. For example, a privately owned animal is typically confined in some capacity, raising multiple parameters of consideration. I suspect the wild genome exploration and continued privatization will further press the question of wild versus domesticated, potentially further influencing conservation efforts.

Disguised as “alternative agriculture,” wildlife is slowly slipping away from public ownership and into private hands where it is often used for commercial gain. This is part of an ongoing, organized, and successful movement to privatize wildlife in North America (Geist, 1995). This study has shown how wildlife privatization directly forces the question of wild versus domesticated and therefore has influence on conservation measures. Although privatization is not included in the framework, this research demonstrates the value for Canadian jurisdictions to analyze and further understand the role of wildlife privatization on conservation action within their respective jurisdictions. Privatization’s role in determining wildness and the subsequent conservation implications serves as an area for potential future research.

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## Appendix A – Interview Guide and Schedule

### **Semi-structured Interview Schedule**

To be conducted in: Canada

Field season: Winter 2022

Researcher: Chantal Cadger Maclean

Interview Schedule

WHAT IS WILD? FRAMING WILD IN THE CONTEXT OF WILDLIFE CONSERVATION  
IN CANADA

#### **Introduction**

Hello, thank you again for agreeing to sit down with me for this interview. As you know, I am exploring the idea of developing a new framework for understanding the parameters of wildness in an animal / population of animals, in Canada. As you may know, there is currently no universally agreed upon parameters for what makes an animal / population of animals wild, or otherwise. Thus far in the research, I have developed an initial framework to help think about wildness, based on the peer reviewed literature, conservation organizations understanding, and Canadian courts interpretations. I am talking to people like you to discuss their experience with using parameters around wildness and to identify strengths, weakness, and opportunities for the framework I have developed. I am using the data from this research to write a thesis at the Natural Resources Institute at the University of Manitoba. If at any point during the interview you need me to repeat anything or have anything clarified, please let me know. If you do not feel comfortable answering a question, we can skip it at any point during the interview. Also, take as much time as you need to pause and think about a question before you respond. I will begin recording this interview using the UM Zoom record feature once we begin interview questions. Do you have any questions before we start?

## Parameters around wildness & the framework

1. What were your first impressions of the framework for determining a population's wildness that I developed and shared with you prior to the interview?
  - a. What did you like about it?
  - b. What did you dislike about it?
2. Were there any parameters you felt were missing from the framework?
3. Do all the existing parameters make sense, did you understand them?
  - a. Do you think wildlife privatization and the legal ownership of an animal should influence its wild status?
  - b. Should the court's interpretation of wild status be included in this conceptual framework that is intended for conservation purposes?
4. Do you think fish, plants, and organisms other than animals should be included as a parameter of wildness?
5. Do you know of any existing documents or literature that I might have missed that discusses the wildness of an animal?
6. Has the need for a framework to understand an animal's wildness, or a classification challenge, ever occurred in your work? If so, what framework did you use?
7. Would the existence of a framework for wildness, like the one I am proposing, aid in any conservation work you do? If so, how so.
8. Based on your understanding of the conservation challenges we face, would a framework like mine be useful in resolving them? Why or why not?
9. I plan to hypothetically test the final framework on focus species, such as the American Bison, Wild Pigs and Northern Abalone. Do you have any thoughts or suggestions regarding these test cases?
10. Is there anything that we have not discussed that you think would be of benefit to my research?

## Appendix B – Consent Form



**University  
of Manitoba**

**Natural Resources Institute**  
Clayton H. Riddell Faculty of  
Environment, Earth, and Resources

## **Appendix II** **Consent Form for Interview**

70 Dysart Road, Winnipeg,  
Manitoba, Canada. R3T 2N2.  
General Office (204) 474-7170  
Fax: (204) 261-0038  
[http://www.umanitoba.ca/academic/institutes/natural\\_resources](http://www.umanitoba.ca/academic/institutes/natural_resources)

### **Interview Consent Form**

**Research Project Title:** What is Wild? Framing wild in the context of wildlife conservation in Canada

**Principle Researcher:** Chantal Cadger Maclean  
Natural Resources Institute, University of Manitoba, 306 Sinnot Bldg., 70 Dysart Road,  
Winnipeg, R3T 2N2

**Research Supervisor:** Professor Dr. A. John Sinclair  
Natural Resources Institute, University of Manitoba, 306 Sinnot Bldg., 70 Dysart Road,  
Winnipeg, R3T 2M6.

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This consent form, a copy of which will be left with you for your records and reference, is to let you know what the research is about and what you will be asked to do if you choose to participate. Please read this carefully and ask any questions you might have to be sure you understand this and any accompanying information. If you want more information about the research, feel free to ask at any time.

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**Research Summary:** My name is Chantal Cadger Maclean, and I am a Master's student at the University of Manitoba, Natural Resources Institute. I am inviting you to take part in my research through semi-structured interviews. The purpose of my research is to create and test a framework that harmonizes the parameters of "wild" for use in developing policies that are aimed at engendering more effective wildlife conservation in Canada. The specific objectives are to: i) establish which parameters are commonly used to determine an animal's wildness, ii) to explore federal and provincial regulatory definitions of wildlife, iii) to understand the implications of the privatization of wildlife for commercial purposes on the definition of "wild," iv) to consider the findings of objectives i, ii, and iii to establish key parameters of wild in a frame that can be applied in practice for wildlife conservation in Canada, and v) to test the frame

and recommend any needed action regarding its implementation for determining “wild” in Canada.

**Participant selection:** You are being asked to participate in this study because of your engagement in wildlife conservation, law, and/or policy. This may be either direct engagement through management, policy or academics, or indirect engagement, examining how you have been affected by wildlife law and policy. Interviews will take place via Zoom or telephone. A total of 10-15 participants have been asked to participate.

**Study Procedure:** Participation in the study will be for one interview of approximately 45 minutes in length and will include a brief consent form review, interview questions, and a debrief at the end. Interview questions will be semi-structured and answers will be audio recorded with your consent, or if you prefer not to be recorded, I will take hand-written notes. There is space to indicate if you consent to being audio recorded at the bottom of this form. I will be conducting the interview.

**Data Storage:** All notes and transcripts will be stored in UM SharePoint, a password protected platform that requires individual login and any written notes will be stored in a locked cabinet in my room. UM SharePoint will only be accessed via personal, password protected devices. The information resulting from this interview will be kept confidential. Only myself, my supervisor, and auditors for the University’s ethics review board will have access to the information you provide. Data will be destroyed by March, 2023 after conducting the research and allowing for dissemination, journal publications, and public presentations.

**Risks and Benefits:** Risks of participating in this study are no greater than in everyday life. When I write reports, or talk about what I learn from you, I will not use your name or information that could identify you, unless you want me to. I want you to be comfortable during the interview, and therefore, you are free to not answer any questions or discuss things that you do not want to. Participating in this research might not benefit you directly, but research results may ultimately be used to engender better wildlife conservation in Canada, and fill a pressing knowledge gap. Research findings and outputs will ultimately result in the development of a framework used to understand wildness in Canada. Research results will be disseminated to participants if requested via the checkbox at the end of this form.

**Confidentiality and Anonymity:** You have the decision to remain anonymous throughout the study or to waive your anonymity and be referred to by your name. If you decide to remain anonymous I will do everything possible to keep your personal information confidential. You will be referred to by a pseudonym (code) in all study records, publications, and presentations, and no one will be able to tell you were in this study. Please note that even if you remain anonymous, your words may be used to highlight a specific point, although you will not be identified as the speaker. The list of names and email addresses of participants will be kept in a secure file.

If you decide to waive your anonymity, you will be referred to by your name in study records, publications, and presentations.

There is space to indicate your decision to remain anonymous or waive your anonymity at the bottom of this form.

**Expected Outcomes:** The information I collect through this research will be used in a University of Manitoba Master's Thesis, which will be publicly available via MSpace (<https://mspace.lib.umanitoba.ca/>). Academic publications and conference presentations may also result from this study. If you are interested in receiving a copy of the findings of my research please indicate so on the bottom of this form and I will send you a link to thesis published on MSpace, once completed.

**Feedback/Debriefing:** Towards the end of the interview, I will request that you verify and confirm the information you have provided. No later than one week after the interview, you will receive a transcript of our conversation via email, as a form of member checking and for secondary confirmation that I have understood your words. You will be provided one week (or longer if requested) to verify accuracy of the transcripts. If no response is received I will assume accuracy and include the data.

**Questions:** If you have any questions either now or in the future, please feel free to contact me or my advisor (contacts are provided on the first page).

**Your Rights:** Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. Signing this form does not take away your legal rights, nor does it release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. Your continued participation should be just as informed as this initial consent, so feel free to ask for clarification or new information at any time.

**Withdrawing:** You are free to withdraw from the study at any time, and /or refrain from answering any questions you prefer to omit, without prejudice or consequence. To withdraw at the beginning, during, or immediately after the interview, please simply state your intention to withdraw and the interview will be ended. To withdraw after the interview has been concluded, please contact me or my advisor by phone or email as listed above and indicate your intention to withdraw. Once you have indicated your intent to withdraw from the study, you will receive email confirmation that you have been withdrawn and your data has been destroyed. I will destroy all data from participants who withdraw, and that withdrawal has no negative repercussions. You are free to withdraw your participation in the study until April, 2022 after that date it will not be possible to remove your information from my data analysis and research reports.

The University of Manitoba may ask to look at my research records to see that my research is being done safely and properly. The research has been approved by the Research Ethics Board at the University of Manitoba, Fort Garry Campus. If you have any concerns or complaints about this project you may contact any of the above-named persons or the University's Human Ethics Coordinator at 204-474-7122 or [humanethics@umanitoba.ca](mailto:humanethics@umanitoba.ca). A copy of this consent form has been given to you to keep for your records and reference.

What is your preferred email address for receiving communications?

\_\_\_\_\_

Is it ok with you for me to audio record the interview? Yes\_\_\_\_ No\_\_\_\_

Do you wish to remain anonymous throughout this study? Yes\_\_\_\_ No\_\_\_\_

Would you like to receive a link to this thesis once completed? Yes\_\_\_\_ No\_\_\_\_

I, \_\_\_\_\_ agree to participate in the interview.

Research Participant's Signature \_\_\_\_\_ Date \_\_\_\_\_

Researcher's Signature \_\_\_\_\_ Date \_\_\_\_\_

## Appendix C – Jurisdictional Scan Results

	Jurisdiction	Wildlife	Wild by Nature	Exotic Wildlife	Game Farm Animal - Various	Notes	Parameters
1	British Columbia - The Wildlife Act (1996) - Game Farm Regulations (2015) - Livestock Act (1996)	"wildlife" means raptors, threatened species, endangered species, game and other species of vertebrates prescribed by regulation, and (b) includes fish, but does not include controlled alien species (The Wildlife Act, 1996)		"controlled alien species" means (a) a species designated by regulation under section 6.4 as a controlled alien species, and (b) hybrid animals and fish that have an ancestor within 4 generations that is a species designated as a controlled alien species; (The Wildlife Act, 1996)	"game" means fallow deer, bison and reindeer; (Game Farm Regulation, 2015)  "livestock" means cattle, goats, horses, sheep, swine and game and includes any other animal designated by regulation; (Livestock Act, 1996)	The only instances where fish are included in the definition of wildlife under the act are for licensing provisions and the establishment of management areas	1. Vertebrates, 2. Prescribed by regulation, 3. May include fish, 4. Does not include controlled alien species
2	Alberta - The Wildlife Act (2000) - Livestock Industry Diversification Act (2000)	"wildlife" means big game, birds of prey, fur-bearing animals, migratory game birds, non-game animals, non-license animals and upland game birds, and includes any hybrid offspring resulting from the crossing of 2 wildlife animals or that belong to the Crown as a result of the application of section 7(4); (The Wildlife Act, 2000)			"present diversified livestock animal" means an animal of a species prescribed by the Lieutenant Governor in Council that does not belong to the Crown, to the Crown in right of Canada or to a private owner who maintains it pursuant to a permit within the meaning of the Wildlife Act, that is identified and registered and that is in containment in Alberta, but does not include any of its exuviated parts; (Livestock Diversification Act, 2000)	Whether an animal is considered wildlife or not is dependent on which category it is classified as within the province. No indication on how the animals that are categorized are determined. Wildlife animals can be owned privately. Species fit into "wildlife," "exotic wildlife," or "diversified livestock animal," based on the parameter of prescribed by regulation.	1. Prescribed by Regulation, 2. Includes hybrids



	Jurisdiction	Wildlife	Wild by Nature	Exotic Wildlife	Game Farm Animal - Various	Notes	Parameters
3	Saskatchewan - The Wildlife Act (1998) - Wildlife Regulations (1981) - The Domestic Game Farm Animal Regulations (2019)	<p>“wildlife” means a vertebrate animal of any species, excluding fish, that is wild by nature in Saskatchewan and includes:</p> <p>(a) any part, tissue, genetic material, eggs, sperm, embryos or other forms of developmental life; and</p> <p>(b) any exotic wildlife found in Saskatchewan; (The Wildlife Act, 1998)</p> <p>For the purposes of the definition of “wildlife” in section 2 of the Act, “vertebrate animal” includes any hybrid animal that has an ancestor, within and including four generations, that was an individual of a species that is wild by nature. (Wildlife Regulations, 1981)</p>		<p>“exotic wildlife” means:</p> <p>(a) a vertebrate animal of any species, excluding fish, that is:</p> <p>(i) not native to Saskatchewan; and</p> <p>(ii) usually found wild in nature in its natural habitat; and</p> <p>(b) any part, tissue, genetic material, eggs, sperm, embryos or other forms of developmental life of a vertebrate animal mentioned in clause (a); (The Wildlife Act, 1998)</p>	<p>“domestic game farm animal” means an animal that is held for the purposes of producing animal products for commercial purposes and that is a member of one of the following species or subspecies, and includes any hybrid animal that has an ancestor, within and including 4 generations, that was an individual of the species:</p> <p>(a) the species of pronghorn antelope having the scientific name <i>Antilocapra americana</i>;</p> <p>(b) the species of caribou and reindeer having the scientific name <i>Rangifer tarandus</i>;</p> <p>(c) the subspecies of elk having the scientific name <i>Cervus elaphus nelsoni</i>, <i>Cervus elaphus roosevelti</i>, <i>Cervus elaphus manitobensis</i>, and <i>Cervus elaphus nannodes</i>;</p> <p>(d) the species of moose having the scientific name <i>Alces alces</i>;</p> <p>(e) the species of mule deer having the scientific name <i>Odocoileus hemionus</i>;</p> <p>(f) the species of white-tailed deer having the scientific name <i>Odocoileus virginianus</i>;</p> <p>(g) the species of fallow deer having the scientific name <i>Dama dama</i>;</p> <p>(h) the species of bighorn sheep having the scientific name <i>Ovis canadensis</i>;</p> <p>(i) the species of American thinhorn sheep having the scientific name <i>Ovis dalli</i>, including stone and dall sheep;</p> <p>(j) the species of argali sheep having the scientific name <i>Ovis ammon</i>;</p> <p>(k) the species of musk deer having the scientific name <i>Moschus spp.</i>;</p> <p>(l) the species of mountain goat having the scientific name <i>Oreamnos americanus</i>; (Domestic Game Farm Animal Regulations, 2019).</p>		<ol style="list-style-type: none"> <li>1. Vertebrate,</li> <li>2. Not fish,</li> <li>3. Wild by nature in SK,</li> <li>4. Includes exotics,</li> <li>5. Hybrid that has ancestors within 4 generations of a species wild by nature</li> </ol>

	Jurisdiction	Wildlife	Wild by Nature	Exotic Wildlife	Game Farm Animal - Various	Notes	Parameters
4	Manitoba - The Wildlife Act (1987) - The Animal Care Act (1996) - The Livestock Industry Diversification Act (1996)	"wildlife" means a live or dead vertebrate animal of any species or type that is not a fish and is (a) wild by nature and indigenous in the province, (b) listed in Schedule A, (c) declared by the regulations to be big game, a game bird, a fur bearing animal, an amphibian or reptile, or a protected species, (d) a hybrid descendant of an animal described in clause (a), (b) or (c), or (e) an egg, sperm, embryo or body part of an animal described in clause (a), (b), (c) or (d) (The Wildlife Act, 1987)		"exotic wildlife" means a live or dead animal of any species or type that is (a) wild by nature but not indigenous in the province, and is declared by the regulations to be exotic wildlife, (b) a hybrid descendant of an animal described in clause (a), or (c) an egg, sperm, embryo or body part of an animal described in clause (a) or (b) (The Wildlife Act, 1987)	"game production animal" means an animal of a species prescribed in the regulations that (a) is privately owned or, in the case of a wild animal, is in the possession of a person under the authority of a license or permit issued under The Wildlife Act authorizing the person to keep the animal, and (b) is in captivity for the purpose or the ultimate purpose of reproduction or sale as breeding stock, meat or non-meat parts (The Livestock Industry Diversification Act, 1996)  "Commercial Animals" include (b) wildlife that is not the property of the Crown under The Wildlife Act (The Animal Care Act, 1996)	Hinges on "wild by nature" term but does not provide definition. "privately owned or in the case of a wild animal, in the possession of a person"... implies that a wild animal cannot be owned, only possessed under the authority of a license of permit. This implies that property rights in wildlife remain with the Crown, even if a game farmer processes the wild animal, unless the animal is not considered "wild by nature" as required for the definition of wildlife, and therefore, not considered a "wild animal" under the Game Production Animal definition	1. Vertebrate, 2. Not fish, 3. Wild by nature, 4. Native to the province, 5. Prescribed by regulation, 6. Hybrid
5	Ontario - Fish and Wildlife Conservation Act (1997) - Invasive Species Act (2015)	"wildlife" means an animal that belongs to a species that is wild by nature, and includes game wildlife and specially protected wildlife (Fish and Wildlife Conservation Act, 1997)		"invasive species" means a species that is not native to Ontario, or to a part of Ontario, and, (a) is harming the natural environment of Ontario or of the part of Ontario in which it is present, or (b) is likely to harm the natural environment of Ontario or of a part of Ontario, regardless of whether it is present in Ontario or in a part of Ontario; (Invasive Species Act, 2015)	"domestic animal" means an animal that belongs to a species that is not wild by nature. (Fish and Wildlife Conservation Act, 1997)  "farmed animal" means a white-tailed deer, American elk, fisher, fox, lynx, marten, mink, raccoon or member of another species prescribed by the regulations that is being kept in captivity in Ontario for the purpose of commercial propagation or the commercial production of meat, hides, pelts, antler products or other products; (Fish and Wildlife Conservation Act, 1997)	Unclear if invasive species are considered wildlife. Animal Health Act regulates game farming, but does not mention wild	1. Wild by nature

	Jurisdiction	Wildlife	Wild by Nature	Exotic Wildlife	Game Farm Animal - Various	Notes	Parameters
6	Quebec - Act Respecting the Conservation and Development of Wildlife (2002) - Animal Welfare and Safety Act (2015)	“animal” means any mammal, bird, amphibian or reptile of any genus, species or subspecies propagating naturally in the wild in Québec or elsewhere from a bloodline not selected by man, or not easily distinguishable from wild species by its size, colour or shape, whether or not it is born or kept in captivity; this term also applies, wherever permitted by the context, to any part or to the flesh of such an animal;			“animal,” used alone, means (a) “domestic animal” means a domestic animal within the meaning of subparagraph a of paragraph 1 of section 1 of the Animal Welfare and Safety Act (1) “animal”, used alone, means (b) red foxes and American mink kept in captivity for breeding purposes with a view to dealing in fur, as well as any other animals or fish, within the meaning of the Act respecting the conservation and development of wildlife (chapter C-61.1), that are kept in captivity for breeding purposes with a view to dealing in fur or in meat or other food products, and that are designated by regulation;		1. Mammal, bird, amphibian or reptile, 2. Propagating naturally in the wild (in Quebec or elsewhere), 3. From a bloodline not selected by man, 4. Not easily distinguishable from wild species by size, colour, or shape, 5. Born in captivity or not
7	New Brunswick - Fish and Wildlife Act (1980)	“wildlife” means (a) any vertebrate animal or bird or any hybrid offspring of a vertebrate animal or bird, excluding fish and the hybrid offspring of fish, of any species of vertebrate animal or bird that is usually wild by nature in the Province, whether or not the vertebrate animal or bird is bred or reared in captivity, and (b) any exotic wildlife that has been introduced into the wild in the Province, and includes any part of such animal or bird; (Fish and Wildlife Act, 1980)		“exotic wildlife” means any bird, mammal or other vertebrate that is not indigenous to the Province and is of a species of wildlife that in its natural habitat is usually wild by nature, whether or not the bird, mammal or other vertebrate is bred or reared in captivity, and includes any hybrid offspring of any such bird, mammal or other vertebrate and any part of any such bird, mammal or other vertebrate; (Fish and Wildlife Act, 1980)			1. Vertebrate animal or bird, 2. Not fish, 3. Wild by nature in province, 4. Includes captives, 5. Includes exotics

	Jurisdiction	Wildlife	Wild by Nature	Exotic Wildlife	Game Farm Animal - Various	Notes	Parameters
8	Nova Scotia - Wildlife Act (1989) - Deer Farming and Marketing of Deer Products Regulations (1991)	“wildlife” means vertebrates that, in their natural habitat, are usually wild by nature and includes (i) domestic organisms that are physically similar to their wild counterparts, (ii) exotic wildlife, (iii) hybrid descendants of wildlife or of wildlife and a domestic organism, (iv) the eggs, sperm or embryos of wildlife, and (v) any other organism designated as wildlife by the Governor in Council in accordance with this Act and the regulations; (Wildlife Act, 1989)		“exotic wildlife” means all birds, mammals and other vertebrates that are not indigenous to the Province and that in their natural habitat are usually wild by nature, and includes any part of such birds, mammals or other vertebrates; (Wildlife Act, 1989)	“deer farm animal” means, (i) an elk having the scientific name <i>Cervus canadensis</i> , (ii) a red deer having the scientific name <i>Cervus elaphus</i> , (iii) a fallow deer having the scientific name <i>Dama dama</i> , or (iv) a sika deer having the scientific name <i>Cervus nippon</i> ,  that is held in captivity at a licensed deer farm for the purpose of producing animal products, and that is of at least third generation captive stock from a commercial licensed premises; (Deer Farming and Marketing of Deer Product Regulations, 1991)		1. Vertebrate, 2. Wild by Nature, 3. Includes domestics, 4. Includes Exotics, 5. Includes hybrids, 6. Prescribed by regulation
9	Prince Edward Island - Wildlife Conservation Act (1988) - Game Farm Regulations (1988) - Animal Welfare Act (2015)	“wildlife” means wild life, wild mammals, birds, reptiles, amphibians, fish, invertebrates, plants, fungi, algae, bacteria and other wild organisms as prescribed by the regulations; (Wildlife Conservation Act, 1988)		“exotic” in relation to wildlife, means any wildlife of a species or type that is not indigenous to the province and that in its natural habitat is usually found wild in nature, but does not include ratite birds; (Wildlife Conservation Act, 1988)	“game animal” means a member of (i) the species of elk having the scientific name <i>Cervus canadensis</i> ; (ii) the species of fallow deer having the scientific name <i>Dama dama</i> , (iii) the species of reindeer having the scientific name <i>Rangifer tarandus</i> , (iv) the species of bison having the scientific name <i>Bison bison</i> , (v) the species of red deer having the scientific name <i>Cervus elaphus</i> , or any hybrid of the above listed species or any member of the family of ratite birds commonly known as emu, ostrich or rhea, that is held in captivity for the purpose of producing game animal products; (Game Farm Regulations, 1988)  “commercial animal” means any of the following animals: (i) alpacas, (ii) bison, (iii) cattle, (iv) chinchilla raised for fur production, (v) deer, (vi) donkeys, (vii) horses, (viii) elk, (ix) foxes raised for fur production, (x) goats, (xi) llamas, (xii) mink raised for fur production, (xiii) mules, (xiv) poultry, (xv) rabbits raised for fur production or as a source of food, (xvi) sheep, (xvii) swine, (xviii) vicunas, (xix) wildlife that is not the property of Her Majesty in right of the province, (xx) any other animal prescribed as a commercial animal; (Animal Welfare Act, 2015)		1. Includes fish, 2. Includes invertebrates, 3. Prescribed by regulation

	Jurisdiction	Wildlife	Wild by Nature	Exotic Wildlife	Game Farm Animal - Various	Notes	Parameters
10	Newfoundland and Labrador - Wild Life Act (1990) - Wild Life Regulations (1996)	"wild life" means a wild animal, fish or bird to which this Act or the regulations apply, and includes the furs, skins and other parts of them and the eggs of those birds; (Wild Life Act, 1990)  "wild animal" means any live animal, including without limitation, any amphibian, arthropod, bird, coelenterate, crustacean, fish, other invertebrate, mammal, mollusk or reptile, whether or not bred, hatched or born in captivity and including any egg or offspring of them. (Wild Life Regulations, 1996)				"domestic bird" includes non-native species kept in captivity but does not include native species kept in captivity or non-native species present in the wild state; The only reference to domestic vs wild (Wild Life Act, 1990)	1. Includes fish, 2. Includes invertebrates, 3. Includes captives
11	Yukon - Wildlife Act (2002) - Game Farm Regulations (1995)	"wildlife" means a vertebrate animal of any species or type that is wild by nature, and includes wildlife in captivity, but does not include fish or a species of animal prescribed by the regulations not to be wildlife (Wildlife Act, 2002)			"game farm animal" means a member of a species of wildlife prescribed by the regulations as a species of game farm animal (Wildlife Act, 2002);  "game farm animal" means a member of a species of wildlife listed in Schedule A that is held in captivity for commercial purposes (Game Farm Regulations, 1995)		1. Vertebrate, 2. Wild by nature, 3. Includes captives, 4. Not fish

	Jurisdiction	Wildlife	Wild by Nature	Exotic Wildlife	Game Farm Animal - Various	Notes	Parameters
12	Northwest Territories - Wildlife Act (2013)	"wildlife" means <b>(a)</b> all species of vertebrates and invertebrates found wild in nature in the Northwest Territories, and individuals of those species, except -(i) fish as defined in section 2 of the Fisheries Act (Canada), and -(ii) other prescribed species subspecies, and <b>(b)</b> species of wildlife referred to in paragraph (a) that are domesticated or held in captivity, and individuals of those species, and <b>(c)</b> prescribed species or subspecies of vertebrates and invertebrates, and individuals of those species or subspecies. (Wildlife Act, 2013)				"wildlife" includes all wild animals except fish and marine mammals. This means that "wildlife" includes mammals, birds, reptiles, amphibians and insects. Wildlife also includes wild animals that have been domesticated or live in captivity. Other animals can be listed as wildlife in the regulations.	1. Vertebrates, 2. Invertebrates, 3. Wild by nature in jurisdiction, 4. Not fish, 5. Includes captives, 6. Prescribed by regulation

	<b>Jurisdiction</b>	<b>Wildlife</b>	<b>Wild by Nature</b>	<b>Exotic Wildlife</b>	<b>Game Farm Animal - Various</b>	<b>Notes</b>	<b>Parameters</b>
<b>13</b>	Nunavut - Wildlife Act (2003)	"species" means a species, subspecies, variety or geographically or genetically distinct population of wildlife that (a) is native to Nunavut, or has extended its range into Nunavut without human intervention, and (b) has been present in Nunavut for at least 50 years; "wild animal" means an animal member of a species, including all parts and products from the animal; "wildlife" means the flora and fauna to which this Act applies under subsections 6 (2) and (3), including all parts and products from wildlife; (Wildlife Act, 2003)		Invasive species (2) No person shall release a member of a species into a habitat in which that species does not belong or never naturally occurred.(Wildlife Act, 2003)		Application to wildlife and habitat (2) This Act applies in respect of (a) all terrestrial, aquatic, avian and amphibian flora and fauna that are wild by nature or wild by disposition;	1. Geographically distinct population or genetically distinct population, 2. Native or extended without human intervention, 3. Been present in Nunavut for at least 50 years 4. Wild by Nature
<b>14</b>	Federal - Species at Risk Act (2002)	"wildlife species" means a species, subspecies, variety or geographically or genetically distinct population of animal, plant or other organism, other than a bacterium or virus, that is wild by nature and (a) is native to Canada; or (b) has extended its range into Canada without human intervention and has been present in Canada for at least 50 years. (Species at Risk Act, 2002)					1. Geographically distinct population or genetically distinct population, 2. Wild by nature, 3. Native to Canada or has extended its range into Canada without human intervention and has been in Canada for at least 50 years

	Jurisdiction	Wildlife	Wild by Nature	Exotic Wildlife	Game Farm Animal - Various	Notes	Parameters
15	<p>Federal</p> <p>- Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act (1992)</p> <p>- Wild Animal and Plant Trade Regulations (1996)</p>	<p>animal means any specimen, whether living or dead, of any species of animal that is listed as "fauna" in an appendix to the Convention, and includes any egg, sperm, tissue culture or embryo of any such animal (Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act, 1992)</p> <p><b>(a) animal</b> means any specimen, whether living or dead, of any wild species of the animal kingdom (kingdom <i>Animalia</i>), and includes any egg, sperm, tissue culture or embryo of any such animal; and</p> <p><b>(b) plant</b> means any specimen, whether living or dead, of any wild species of the plant kingdom (kingdom <i>Plantae</i>), and includes any seed, spore, pollen or tissue culture of any such plant. Wild Animal and Plant Trade Regulations (1996)</p>			<p>"bred in captivity" means</p> <p>(a) in the case of sexual reproduction, born or otherwise produced in a controlled environment of parents that mated or whose gametes were otherwise transmitted under controlled conditions, and</p> <p>(b) in the case of asexual reproduction, produced or developed under controlled conditions; (Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act, 1992)</p>		



	<b>Jurisdiction</b>	<b>Wildlife</b>	<b>Wild by Nature</b>	<b>Exotic Wildlife</b>	<b>Game Farm Animal - Various</b>	<b>Notes</b>	<b>Parameters</b>
<b>16</b>	Federal - Canada Wildlife Act (1985)	The provisions of this Act respecting wildlife apply in respect of  (a) any animal, plant or other organism belonging to a species that is wild by nature or that is not easily distinguishable from such a species (Canada Wildlife Act, 1985)					1. Wild by nature or not easily distinguished as such, 2. Animal, plant, or organism

